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EDITORIAL

FIVE MILLION MEN UNDER ARMS.

With the tide at the full and with the unrest of Russia, the uncertainty in Italy and the heroes of Britain, Belgium, Roumania, Servia and glorious France at the throats of the Central Powers, our duty seems plain—but mere effort will not suffice.

Our armaments are on the way—every resource is developing to its fullest efficiency, but the thing that is to count is the man power to make the resources available. At least five million men must be ready, soon.

The medical profession has responded well, but not to its capacity. Small excuse has been needed for some to falter and to fall back waiting for some more personal argument.

Every man is needed now. With five million men, there must be fifty thousand medical officers and there are less than seventeen thousand commissioned to-day, including the regular Medical Corps, the Medical Reserve Corps and the Medical officers of the National Guard.

It is the business of the medical profession itself to see to it that every man who can be spared should soon fall in line for service. Great Britain had 30,000 doctors when war came; 10,000 of these are in the army to-day.

The Medical Department of the army is busy with many things and it cannot develop all the patriotism and all the enthusiasm. The rank and file of the medical profession must help. Count the men who can and who should go from your own community. Put upon yourself or your neighbor, if he is more fit, the burden of service and the honor of it and bid him go, but do not stop to argue its necessity. *That time has passed.*

Peace is a long way off—the long roll will not be called for many months to come and every community must pay the toll, over and over before all is done. No miracle can stop the machinery of war and there can be no use in waiting for it to go by. We must move along with it, to the end.

We are at war—all of these United States and all of us who have red blood in us must feel the sway of its demands and we must answer with the best service we know. Tomorrow the sorrow of it all may come nearer home, but by advancing to meet the evil on the way we may the sooner drive it on to its own destruction.

MEMBERSHIP ONE THOUSAND.

In another column the secretary of the Louisiana State Medical Society presents the joyful announcement that the society has reached the thousand mark. While on paper it has already been numerically as strong, the society has never had a thousand full-paid, active, interested members; the society, through its energetic officers who have accomplished the result, must be congratulated therefor.

Must we stop at this? Never! This point merely marks a milestone, registers an advance towards another objective which should

from hence be fifteen hundred. The same energy and perservance on the part of the officers and members will just as surely get there as we now have reached our present objective.

The advantages of membership in the society are so great and have frequently been brought out, and forcibly, by the society, hence we need not reiterate them at this time, but we must say to our Louisiana readers who are not already members of the state society that they can not afford to stay out. Let them think it over.

UNIVERSAL MILITARY TRAINING.

The physician is essentially pacific, as his mission is primarily to conserve human life.

This, however, does not make him a pacifist in the sense of the present use of the word, for the upholding of democratic principles and true liberty must in the end yield happier existence, greater progress, and longer lives, even if won at the price of sacrifice of life and treasure by this generation.

If he reflects, it will make him favor a conservative form of universal training: ultimately, because preparedness means prevention of war and saving of human life; presently, because training for our young men means physical improvement, broadened vision and the bringing of the classes to a better understanding of the problems of each.

Does any one who reflects think that France could have done what she has done and fought as she has fought if she had not had universal military training?

The question answers itself and of itself should make medical men favor universal military training for this country and champions, *as experts,* of the Chamberlain Bill providing for it.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

THE TREATMENT OF TYPHOID FEVER.*

By LUCIEN F. SALOMON, M. D., New Orleans.

In 1903 I read and published a paper upon the treatment of typhoid fever.

An article by Warren Coleman, M. D. of New York published in *Journal of the American Medical Association* for August 4, 1917 prompts me to reiterate and emphasize much of what I then had to say, and also to comment upon Dr. Coleman's paper and stress the difference between his results and mine.

It will be remembered by those who heard or read my paper, published in the N. O. MEDICAL AND SURGICAL JOURNAL, that I laid particular stress upon the cardinal principle in the treatment of typhoid fever, viz: *intestinal rest,* and the influence of arsenite of copper in controlling the disease.

My records show 186 cases without a death, without tympanites, without hemorrhage, and without complication of any kind. In fact in all cases within 72 hours after beginning treatment the temperature begins to decline and defervesence gradually takes place until normal is reached from the 12th to 14th day.

Dr. Coleman compares his cases upon a high calory diet with cases upon a milk diet, which, to my way of thinking, is unfair because I cannot believe that anyone who has had experience with milk as an article of diet in typhoid fever would continue to use it when it not only prolongs the duration of the disease, but undoubtedly causes tympanites, increases the tendency to ulceration, and frequently results in hemorrhage.

The duration of the febrile period and range of temperature are not affected by the high calory diet alone, and while it is the generally accepted opinion that medication has no influence upon the disease, it is this latter point mainly that I desire to deny and to to show that the use of arsenite of copper does have a decidedly

* Read before the Orleans Parish Medical Society, October 8, 1917. [Received for publication November 10, 1917.—EDS.]

beneficial effect, and while in Dr. Coleman's cases he has the satisfaction of knowing that his patients have not lost and in some instances have even gained in weight, that satisfaction is offset by the duration of the illness and of the complications which occurred.

According to his statement, typmanites occurred in 17.6 per cent. diarrhea in 16.2 per cent, 7.65 per cent were delirious thru the greater part of the active period and 13.5 per cent were delirious from one to several nights; and intestinal hemorrhage occurred in 9.45 per cent. In 0.9 per cent perforation occurred. Relapses occurred in 6.75 per cent.

The mortality was 8.10 per cent, which is rather high when compared with the average death rate from typhoid fever, even under the old "expectant" plan of treatment. In fact, if I remember correctly while on a visit to Porto Rico at about the termination of the Spanish American war when I saw 540 cases in the military hospital at Ponce, I was informed by the surgeons in charge that the mortality was 7.5 per cent.

Clinical Picture. While the history of typhoid fever heretofore has shown the febrile course to be attended with delirium, stupor (the so-called typhoid state), tympanites, diarrhea and various nervous phenomena, in my cases the patients are never delirious, have no diarrhea, or even nervous symptoms, and lie in bed at ease, and in the large majority of cases express themselves as feeling that that there is nothing the matter with them. They do not feel ill and are always bright of intellect and often cheerful, lie upon either side and are perfectly comfortable.

With these few preliminary remarks it is only necessary to say that the treatment of typhoid fever is so simple and easy as to require very little attention on the part of the nurse, for as nurses have again and again said to me they have so little to do that they would rather nurse a case of typhoid fever for me than anything else, as their duties are practically negligible and they are not constantly at work.

Given a case of typhoid fever seen early in the course of the disease, the treatment consists first in cleaning out the intestinal tract by a brisk saline purgative, the reason for which is obvious. After that the administration of arsenite of copper, 1/100 to 1/50 grain, every three hours, a saline enema daily, and a readily assimilable liquid diet of which I shall speak later.

The condition in typhoid fever might be stated to be a double culmination of general sepsis or toxemia, and a local traumatism in the intestinal canal; that is, the always present inflammation of Peyer's patches, which latter is always the source of the complication so often met with—ulceration, diarrhea, and hemorrhage.

In the use of arsenite of copper I believe, and it is furthermore my firm conviction, based upon a large experience and long observation, that we possess an agent which effectually combats the combined conditions above mentioned.

The action of the drug is two-fold.

As I stated in my previous article on this subject, the combination of arsenic and copper makes a powerful germicide and antiseptic. When administered to a patient with typhoid fever it appears to have, and I am firmly convinced does have, a direct influence upon and destroys the toxins generated by the typhoid bacillus, and in addition to its general systemic effect has a direct local action upon the inflamed acuminated glands, because the being absorbed it is eliminated thru the intestinal wall and thus has a direct effect upon the local diseased condition.

The charts which I present will show the beneficial effects of the arsenite of copper, which in my experience have been so uniform that there is no room to doubt that it is the agent which modifies the course of the disease.

I do not give detailed histories of individual cases because in all my cases the histories have been uneventful, being but a simple record of improvement and gradual decline of temperature.

In all cases, with rare exception, within seventy-two hours after beginning treatment its effects will be manifested. No matter how high the temperature at the beginning, at the end of the time specified there will be a decided drop in temperature which will continue following the regular temperature curve of typhoid fever until about the eighth day when the daily temperature will grow progressively less and complete subsidence will occur about the twelfth or fourteenth day. It is hardly necessary to go into details of this gradual decline, but a careful observation will enable one to tell almost to the day when the temperature will become normal.

Frequently after reaching normal the temperature will for two or three mornings be subnormal, and incidently I might say that

in such conditions you will find caffein to be the best stimulant until such time as the patient may begin to take larger amounts of carbohydrates when a normal temperature will be maintained. I do not allow meat until a week or ten days after normal temperature has been reached, and consequently do not have relapses.

Now, as to the administration of the drug under consideration: This is a matter deserving of careful attention, because altho apparently a simple matter I have often had difficulty in having pharmacists prepare it as directed.

I do not use tablets or tablet triturates as commonly found in stock in drug stores for obvious reasons. To insure results I determined to use the pure salt, and have never failed in attaining good results by using Merck's pure arsenite of copper suspended in distilled water. The directions for preparing are that it shall be well triturated in a mortar before adding water. It will then be found that the finely triturated salt when mixed with the water will be in the form of a flocculent deposit, which upon shaking the bottle will remain in suspension long enough to be susceptible of equal division and accurate dosage. One half grain to six ounces of distilled water will give to each teaspoonful approximately one one-hundredth of a grain (1/96). This is administered every three hours.

Of course, the administration of the arsenite of copper, while modifying and shortening the course of the disease, does not constitute the only treatment.

While it is the agent which removes the cause, there are other details which are almost as essential and which require as much if not more care than the administration of the drug. In other words, the proper management of each individual case is necesssary and will do much towards securing a rapid and favorable termination of the case.

Daily flushing of the colon with a saline enema is essential and materially assists in recovery. Purgatives by mouth are condemned. A word about temperature. Do not let it worry you. I have had cases at the beginning with temperatures as high as 105°, but relied always upon the results of the arsenite of copper and have never been disappointed. Under no circumstances give the so-called antipyretics, as they are always depressing and do more harm than good. A temperature varying between 103° and 104° for two or

three days will do no particular harm, but should it be deemed necessary to attempt a reduction and make the patient more comfortable and the relatives more contented, sponging with tepid water and alcohol will generally secure the desired results.

However, I always keep an ice cap to the head. Under no circumstances do I allow ice applied to the abdomen.

If at any time a heart stimulant is thought advisable give digitalis and not strychnin as is often done (strychnin is *not* a heart stimulant). However, as a general tonic in the later stages or during convalescence it may be given.

As to diet. As mentioned at the beginning of this article the one great desideratum, owing to the inflammation of Peyer's patches, is intestinal rest, and this can only be obtained by giving such food as leaves the least amount of residue to pass over and irritate an already inflamed surface.

The diet is confined exclusively to liquid peptonoids (one ounce every 2 hours), containing protein, lactose, dextrine, and cane sugar, each ounce of which equals 62.1 calories, the whites of three or four eggs daily, given in orange juice, grape juice if agreeable to the patient, and water, preferably carbonated, *ad libitum*. I sometimes vary this with panopeton, or Hart's alimentary elixir, if more agreeable to the patient. The patient thus gets food in 24 hours of a caloric value of about 1000, which is amply sustaining.

I have confined myself so far to the treatment of cases which I had at first hand, but I have been called in consultation and have seen cases which did not present as clear and pleasant a clinical picture—cases with tympanites, delirium, ulceration, and hemorrhage.

However, in every instance shortly after a change of treatment to the method herein indicated improvement began and the cases went on to recovery.

The management of such cases calls for much and varied treatment which is not contemplated in the purpose of this paper, because if the method of treatment as here indicated were pursued such complications would not occur, and it is for the purpose of endeavoring to prevent them that this is written.

To conclude. There is an old saying that "a prophet is not without honor save in his own country."

I have written and talked upon this subject and have demonstrated to several physicians in New Orleans its success, but for some incomprehensible reason, which it is difficult to fathom, the profession in this city has refused to accept or have ignored it.

In contradistinction to this attitude I shall end by quoting from letters received from elsewhere.

From Geo. T. Moore, in charge of Laboratory of Plant Industry, U. S. Department of Agriculture:

"I was very much interested in learning of your success in the use of arsenite of copper for the cure of typhoid fever. You should certainly have all the credit and I am surprised that it has not been used to a greater extent."

Mr. A. P. Brantley, of Blackshear, Georgia, after having written to me and having his son, who was desperately ill, treated according to my method, and recovered, writes as follows:

"I showed our local physician here your letter, and he became interested in the arsenite of copper treatment for typhoid fever. At the time I showed him your letter he had two cases of typhoid fever, which had progressed to the stage of ulceration of the intestines. I had on hand some arsenite of copper, which I gave to him, and he immediately began the use of it. Both cases promptly convalesced. He has since had three cases, all of whom recovered."

A physician, formerly a resident of New Orleans, writing of my method of treatment stated that in two cases with intestinal hemorrhage both rapidly recovered without any further untoward symptoms. A few physicians who had followed the treatment in all its details have spoken to me in glowing terms of the results, and I only ask that others will at least give it a trial when I am sure that it will be agreed that it is the most rational, as well as the most successful method of treating typhoid fever.

DISCUSSION.

Dr. Joseph Holt: On a previous occasion Dr. Salomon kindly explained to me his manner of treatment for typhoid, which I have followed in many cases as most rational in clearness of intention, simplicity in application, unobjectionable to the patient and with uniformly excellent results.

During the active period, in teaspoonful doses, a carefully tritarated but not strained aqueous suspension of the ninety-sixth of a grain of the arsenite of copper, every three hours; using in the mixture just enough tragacanth or gumarabic to insure a brief suspension upon shaking; the avoidance of milk in any form or other animal diet where there is a possibility of putrefacting change. Intestinal antisepsis is the secret of success in this disease. Nourishing with liquid beef peptonoids or panopepton, a tablespoonful in water, as agreeable, every three hours; the bowels gently opened daily by a flushing enema or, if need be, a mild laxative.

Under this regimen the patient never exhibits such clinical phenomena as tympanites, hypertonicity of abdominal muscles, parched, glazed tongue, hiccough, subsultus, persistent delirium, the tache meningeale or other sign of impending hemmorrhage, heretofore accepted as diagnostic symptoms, rather than evidences of faulty management, often fail.

The specific ulceration of the intestinal glands demands treatment according to surgical principles in drainage and rest—not severe purgation, but simply drainage. This will relieve tympanites and mitigate all other effects of toxemia.

Dr. Salomon: (In closing) I wish to thank Dr. Eustis and Dr. Holt for their kind discussions. I wish to explain to all who wish to use this method of treatment, that merely giving arsenite of copper does not constitute the whole plan of treatment for typhoid fever (recite a case where the doctor in attendance of a case of typhoid simply giving this drug, thought that he was carrying out Dr. Salomon's plan of treatment, where upon the patient doing very badly, he sent for Dr. Salomon in consultation, who advised the doctor that he had not followed the form of treatment by simply giving the arsenite). Adhering to a proper form of diet with rectal flushing (with salt solution) is an essential part of the treatment. In regard to the prescription of arsenite of copper, instruct the druggist to trituate the drug well before mixing it with distilled water. It is not very hard to compound if properly done. I follow the plan of having one druggist in this city to fill this prescription, in order that same may be properly prepared. I think there is no objection to using this drug in the form of capsule, as suggested by Dr. Eustis but have always procured excellent results in the liquid form when prepared as described in my paper.

CRIPPLES WHO SHOULD NOT BE.*

By JAMES T. NIX, JR., M. D., New Orleans.

This paper is intended especially for those developmental or acquired conditions which, when not properly treated, gradually, progressively, and entirely invalidate the healthy child or sturdy adult. Some over-looked focal infection, systemic disease or constitutional derangement with unbridled destructive force predilects, attacks, and partially or totally disqualifies the ambulatory machine.

Let every doctor review his acquaintances and he will recall one or many cripples who, tho once in apparent perfect health, are now useless citizens, hopelessly invalid, pitiably infirm. They have consulted the best physicians and faithfully executed their highly intelligent recommendations, but to no avail. After years of suf-

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fering, with no relief, clearly and distinctly the inevitable state of life-long invalidism looms foremost on their horizon.

In desperation, as a last resort, they turn from ethics to charlatanism, exhaust the long list of patent remedies, scour the secret recesses for magic Indian herbs, revive the grand-mother's formulae, but the trial of each simply adds greater disappointment to the last. Cure is apparently impossible, and the most to be expected is a little comfort.

In many such cases, the diagnosis of symptoms, undiscovered etiology, misapplied or misdirected therapy are the responsible factors, and if recognized and successfully met may produce the most amazing results. A careful, searching analysis should be made, and the obscure cause, no matter how seemingly irrelevant or disconnected should be vigorously attacked. As a reward, in surprising proportion these given-up-unfortunates may be made useful members of society.

Remember that just as well as lues and gonorrhea may affect the joints, so also may the poisons and infection resulting from an infected sinus, disturbing appendix, bad tooth or small pus accumulation anywhere. Under such conditions, treatment of the arthritis, without removing the cause, is not only worthless, but aggravating to the malady.

REPORT OF CASES.

First Case. Milton McDonnel, 16 years old.

Family history: No similar condition on either parental side.

Previous history: Until the age of eight years the child had perfect health. In 1909 he fell ten feet from the limb of a cherry tree and landed on the ground in the sitting position. He was confined to bed for one week, after which the child seemed to get about as well as before. One month later however he developed typhoid fever which was very severe, lasting eight weeks, and followed immediately, before complete convalesence, by rheumatic pains in the right ankle and knee which represents the initial apparance of the present malady.

From this time on arthritic changes of pain, swelling, and fixation have included joint by joint all articular surfaces, showing no predilection for any locality but being general, involving the extremities together with the entire vertebral column. Until one year ago the child had travelled extensively in quest of a cure, moving to different climates and visiting all the large northern and eastern orthopedic clinics, according to physicians' advices.

He came to New Orleans in the early part of 1916 and was admitted to a clinical service in the Charity Hospital. All of the various internal remedies were administered but as the child made no progress, he was

transferred to an orthopedic service, where he remained for several months, but no curative lines of treatment were attempted, and the boy was transferred back to a medical service.

Child first seen by me in November, 1916, and on calling my attention to the case the interne remarked: "here is a case which probably you do not care to see; he is feeble minded, a cripple, and nothing can be done for him." On examination, however, the following points were noted: poorly nourished, anemic child, confined continuously to bed for past six months. Legs and thighs held firmly in a position of semi-flexion knees showing fibrous ankylosis. Patient could not stand or even sit up in bed because of deformity. Entire vertebral column was rigid and most of it firmly ankylosed. Rotation of the head was impossible, with very little antero-posterior motion in cervical vertebræ.

Upper extremities were very little affected.

Wassermann and all blood examinations were negative.

The one pronounced point in the entire history was referrend to the alimentary canal. Child had repeated and almost constant intestinal disturbances, viz., eructations of gas, nausea, sour stomach, colicky abdominal pains, and the most obstinate constipation. He had an enormous appetite and would eat well, but suffered terribly after every meal.

Inspection showed the abdomen slightly distended below the umbilicus.

After twenty-four hours. Extreme type of coloptosis and stasis. Entire transverse colon in pelvis.

Tonsils and teeth were normal and no pus accumulations could be found.

Radiographs of the intestinal tract were requested, and they elicited the most extreme type of intestinal ptosis with stasis, confined entirely

to the colon. Stomach was distended, but emptied itself completely in six hours.

Treatment: Operation, December, 1916, Ileo-colostomy, anastomosing terminal end of ileum to descending colon, at a point two inches distal to splenic flexure, thereby short-circuiting the area of stasis and putrefaction.

Patient made an uneventful recovery from intestinal operation and three weeks later flexion deformities of lower extremities were corrected under ether anesthesia and a plaster spica of both hips applied including the knees. After two weeks the heavy cast was removed and a light one applied around the right knee only, which still showed a tendency to flex. The boy was then made to get out of bed every day.

At the end of three months repair had been very rapid. Patient

1. Shows right knee still in plaster. Child standing without support.
2. Brings out clearly the rigidity and fixation of spine. Patient's eyes are directed obliquely downward. Chin cannot be elevated more than shown

had gained twenty pounds in weight, intestinal symptoms had disappeared entirely, there was absolutely no indications of any continued arthritis, and excepting for a rigid spine still uncorrected, the child was in excellent condition.

He has since returned to New York and has engaged in business, full of ambition and energy, with mentality equal if not in advance of his age.

Second Case: This represents the same type of a case untreated. Mrs. J. Reinhardt, 48 years old. For the past twenty years she has been a helpless invalid confined entirely to bed.

The trouble started twenty-two years ago, the symptoms being those of rheumatism affecting first the fingers and toes and later the elbows, knees, hips and other joints. At present every articular surface of her entire bony frame-work is completely ankylosed, including the jaw and the spine. Patient cannot even open her mouth and has to subsist on liquid nourishment introduced thru a glass tube. Body is absolutely rigid as a board and fixed in one position.

History in this case places the etiology definitely on the alimentary canal. Bowels move about once in every seven or ten days and then only after taking strong purgatives. It is not infrequent that two weeks elapse without defecation.

It is plain therefore that crippling arthritis is as a rule a symptom, a pronounced objective manifestation of a more obscure, tho perfectly definite condition, whether it be bad tonsils, septic pyorrhea, chronic sinusitis, diseased ethmoids, suppurating middle ear, pent up secretions, delayed excreta, chronic inflammation of the appendix or gall bladder, pus foci anywhere, acute or chronic constitutional diseases, viz., influenza, typhoid, gonorrhea, syphilis, tuberculosis.

In such cases treatment of the joint disturbance primarily is an expression by the physician of a lack of thorough understanding of the case. The patient is put thru third degree torture associated with the manipulation of painful stiff joints, but the deformity constantly returns in aggravated form, ultimate cure being rendered far more difficult and much valuable time lost.

Recapitulation.

First. Every obscure case of arthritis should be put thru a most scathing cross questioning of history taking and most rigid physical and, if necessary, X-ray examination with a view of determining the etiologic factor or factors.

Initial and most thorough treatment should be directed at the cause, after control or elimination of which corrective measures should be pursued.

(a) Case No. 1 shows unquestionably a long standing condition of intestinal ptosis with colonic stasis, successfully treated by operation.

(b) Case No. 2 shows the same condition unrecognized until the arthritis changes were beyond repair. Diagnosis had been purely those of symptoms and not the real entity.

Second and Final: be very conservative about proclaiming a cripple hopeless. Neither let us place ourselves in the category

of our fore-fathers who considered these unfortunates the victims of divine wrath, ill omens from the gods, and consequently offered them no relief, but rather let us believe that each unsuccessfully treated case represents bad judgment and reflects possible discredit on his doctor.

For the crippled such a medical aspect will mean decided reduction in number and real relief from pain.

DISCUSSION.

Dr. Homer Dupuy: The essayist has alluded to the nasal sinuses and the tonsils as possible foci of infection. I wish to stress certain points relative to the tonsil as a factor in arthritis. I wish to emphasize this as strongly as I can that it is often very difficult to place the blame on the tonsils. I refer specially to that group of cases in which neither the history nor the local appearance give any clue whatever that the tonsils are causing the trouble. There has been no previous attack of tonsillitis. At the time of examination no foul secretions are obtainable from the crypts of the tonsils, and yet these very tonsils may be playing the chief role in causing the joint affections. True, after repeated examinations at intervals, we may be so fortunate as to obtain foul secretions from the tonsillar crypts after repeated probing. But you can readily see how difficult it is in such instances to say positively that the tonsils are responsible. Until we have a more certain method of arriving at a diagnosis in this particular group of cases, my personal attitude in the matter is, when every possible focus has been excluded, and if we turn to the tonsils as suspicious factors, I then advise what may be termed experimental surgery. We will remove the tonsils as a last resort, as they may be the cause of the joint trouble. Happy results have sometimes, in my experience, followed this method of procedure, and so I feel that the seriousness of the joint infections as stressed in the paper, amply justifies removal of the tonsil in this experimental way when we are dealing with this exceptional group of obscure cases.

Dr. Lucian H. Landry: The question of intestinal stasis has been very much discussed since being popularized by Mr. Lane some few years ago. However, we must remember that coloptosis does not always mean stasis. We were taught that the normal contour and position of the transverse colon was more or less a perfect arch reaching over from the hepatic flexure to the splenic flexure, with the convexity downward. With the advent of the X-ray, which enables us to get perfect tracings of the large gut, we find that the normal transverse colon is more or less in the position of a hammock and may reach to the umbilicus and even below without causing intestinal stasis. In other words, don't make a diagnosis of intestinal stasis solely from an X-ray plate.

Dr. H. W. E. Walther: I think this is a very important subject and believe that it is necessary that a thorough examination of patients should be made. A complete physical examination is essential, in order to determine the etiology of the disease. The prostate and seminal vesicles in the male are productive of various joint symptoms. I do not think that 80 per cent of all cases of illness are due to some form of enteroptosis as stated by Fossier.

Dr. A. G. Friedrichs: There is no doubt that a great many conditions of infection that are obscure might be cleared up by an examination of the mouth. As one of the active sources of a cause, the oral cavity should never be overlooked. I am of the opinion that an examination of this cavity should always be considered, examined and eliminated. I heartily agree with the essayist that an early recognition of the sources of infection would avoid much suffering and many a deformity. I had a case where the patient's feet were so involved that it was impossible for him to walk without the assistance of a stick. His mouth was examined and several teeth were discovered to be involved. They were removed, a pyorrheal condition of the mouth treated; a month after he is now entirely relieved and is walking about comfortably. This is only one of the many different conditions wherein lesions in the oral cavity play their part. This is the character of the work for which I have established a clinic in the Charity Hospital and I can assure the profession that it would be a great pleasure for them to cooperate in the clearing up of all such cases.

TRANSLATION

THE OCCURRENCE OF CLONORCHIS SINENSIS IN EASTERN CUBA.*

By PERCY LENNARD QUERENS, M. D., New Orleans, La.

Clonorchis sinensis, a trematode parasite of the bile ducts, and in some cases the pancreatic ducts has not been previously reported in Cuba, and tho not endemic should excite considerable interest on account of the possibility of planting the infection permanently thru the medium of the influx of Chinese and Japanese laborers from endemic centers of the orient: of course this depends on the presence of an intermediate host which has been found to be certain species of fish.

Craig[1], in his address before the American Society of Tropical Medicine during its Twelfth Annual Meeting, sounds the warning note of the gradual introduction of this infection and cites the instance of over twenty cases already reported in the United States.

In a later article Gunn[2], examining the feces of Chinese and Japanese immigrants coming into San Francisco found over 20 per cent infected with no superficial evidence of infection except slight anemia in some; the examination of eighty-two sick Chinese, all residents of California showed the presence of the parasite in

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twenty-four or over 29 per cent. Of these a large number had been in the United States from four to six years. The examination of thirty-two sick Japanese, also residents of California revealed the infection in four or 12 per cent.

In Japan and China the disease varies in frequency in different districts, ranging from 5 to 50 per cent and more; besides man, dogs, cats, and hogs are frequently found to harbor the worm.

DESCRIPTION OF THE PARASITE.

Clonorchis sinensis is a trematode worm of the phylum Platyhelmia, class Trematoda, and family Fasciolidæ; the genus is divided into two separate species, viz: *Clonorchis sinensis* and *Clonorchis endemicus,* the differential characteristics according to Stephens[3] being as follows: *C. sinensis* "In shape resemble *Opisthorchis felineus,* 13 to 19 mm. long, 3 to 4 mm. broad, at the beginning of sexual maturity 12 to 13 mm. long, 2.5 to 3 mm. broad. Oral sucker 0.58 to 0.62 mm., ventral sucker 0.45 to 0.49 mm. in transverse diameter. In the parenchyma numerous yellowish or brownish granules, especially behind the oral sucker and at the posterior end. Testicular branches very long, in the anterior testis often four, in the posterior testis five branches. Ovary generally with three large lobes and a smaller lobe. Vitellaria not always symmetrical, generally extending laterally from the ventral sucker to the ovary, interrupted in parts." In regard to *C. Endemicus* Stephens continues; "Very similar to the previous species and consequently generally confused with it. Length between 6 and 13 mm., width varying between 1.8 and 2.6 mm. Oral sucker 0.37 to 0.5 mm., usually 0.43 to 0.45 mm. in transverse diameter; ventral sucker 0.33 to 0.45 mm. usually 0.37 to 0.40 mm. No pigment in parenchyma; anterior testis with four, posterior testis with five branches. Vitellaria continuous."

The ova are dark brown in color, very small, and are operculated. The size varies slightly for each species as follows: those of *C. sinensis* are 26 u to 30 u by 15 u to 17 u, averaging 29 u by 16 u; those of *C. endemicus* are 26 u by 13 u to 16 u.

DISTRIBUTION.

C. sinensis is found most frequently in China, while *C. endemicus* is most frequently found in Japan, Tonkin, and Indo-China. Stephens thinks that the exact distribution of both can not be defined at present as there is no distinction commonly made.

Pathology.

Further quoting Stephens: "Both species of Clonorchis give rise to grave symptoms. The liver is generally enlarged, though when the infection has lasted some time it begins to contract. The surface of the organ is studded with white vesicles, and on cutting into it one sees numerous cavities with thickened walls (distended bile-ducts) filled with a brownish fluid containing innumerable eggs, which cause its color. Microscopically, the epithelium of the bile-ducts is either (1) entirely destroyed, or (2) actively proliferates, forming an adenomatous outgrowth. Occasionally this proliferation is not limited by the wall of the bile-duct but penetrates it and leads to a growth of numerous new ducts, forming a malignant biliary adenoma. The bile ducts have their connective tissue wall greatly sclerosed. These fuse with one another, forming areas of sclerosis devoid of liver tissue. As a result of these changes the liver cells atrophy and undergo fatty pigmentary and granular degeneration. Besides these changes, due probably to the toxic action of the flukes, mechnical obstruction due to the actual plugging of the ducts by the flukes causes retention of bile and icterus, and thru pressure on veins, ascites and hypertrophy of the spleen."

Castellani and Chalmers[4] state that "In man they live in the bile-ducts, in the recesses in the wall of the dilated gall-bladder or of the bile-ducts, and in the duodenum. They may also be found in abscesses apparently unconnected with the liver. The intestine may show catarrhal inflammation. Ova have been met with in the abdominal lymphatics, while the flukes themselves have been found in a lumbar abscess. The blood shows an eosinophilia."

Life-History of Parasite.

As far as known, only the second intermediate host seems to have been discovered being fresh-water species of fish in Japan. This knowledge results from the work of Kobayashi and quoting Stephens is as follows: "He, (Kobayashi) fed cats with encysted flukes (cercariæ) from various fish and easily succeeded in infecting them, *e. g.* a kitten, proved to be un-infected by repeated examination of its feces, was fed on infected fish; a month later innumerable flukes were found in the bile-ducts, gall-bladder, pancreas and even in the duodenum. The fish infected were *Leucogobis guntheri, Pseudorasbora parva,* and to a less extent *Acheclog-*

nathus lanceolata, Acheclognathus limbata, Paracheclognathus rhombea, Pseudoperilampus typus, Abbottina psegma, Biwia zezera, and *Sarcocheilichthys veriegatus.* The cysts occur thruout the muscles and subcutaneous tissue of the fish. Length 0.13 mm. breadth 0.1 mm. The cercaria lies folded in the cysts, length 0.5 mm. breadth 0.1 mm. It tapers posteriorly. Skin at first covered with fine spines, disappearing as they grow older. Body dotted with fine pigment."

There seems to be no knowledge concerning the method of transmission in China as yet.

SYMPTOMATOLOGY.

This usually depends on the number of worms present and varies from a slight anemia only to more marked evidence of the presence of the parasites. The appetite becoms poor, the liver enlarges, becomes very painful, both to touch and subjectively; jaundice may occur. Following this the spleen enlarges. The general health does not seem to suffer until sometime after the infection has taken place, possibly five to ten years. Later as the condition progresses the liver contracts. Toward the end of the disease emaciation becomes extreme, ascites, edema of the feet and legs, and diarrhea being the usual sequelæ.

Vomiting frequently accompanies the late symptoms, acting in bringing about a rapid termination. Abscesses may occur due to secondary infections.

DIAGNOSIS.

Owing to the liability of confusing the clinical findings with other diseases of the liver that may give a similar picture, the diagnosis can be made only by finding the ova in the feces. This can be accomplished best by the use of washed centrifuged specimens, which are proven to be the most accurate.[5, 6]

Ordinary smear preparations are not without their faults, furthermore the size of the ova reduces the frequency of their detection.

PROGNOSIS AND TREATMENT.

The prognosis is usually bad as no specific measures are available; symptomatic treatment only is possible. Removal from endemic foci has been found to be beneficial in some cases as it prevents further infection, and at times allows the patient to outlive the parasites provided that the number is small. Different

drugs have been used such as Thymol, Felix mas, and Salol, the latter having been found beneficial in the liver flukes of sheep.

Prophylaxis consists in boiling the drinking water in endemic regions; fish and all shell-fish should not be eaten uncooked.

Author's Case.

A. T., a Chinese laborer, aged thirty-one years, entered the hospital February 5, 1917, with the following history: he was born in the Canton District of China, and came to this country eight years ago and was perfectly well at the time. He continued in good health until four years ago, when he began to have a dull pain in the region of his liver associated with a feeling of heaviness. During the past year the trouble has been getting worse and he noticed that he is losing weight very rapidly. He thinks that there may have been some swelling of his legs, but has no notice of it. For the past four months he has always vomited after taking a full meal, and is suffering with a severe diarrhea that does not seem to get any better. Three days before entrance he began to have some slight chills followed by fever coming on daily.

His past history is negative, likewise for veneral diseases.

On examination we find a moderately well developed individual but extremely emaciated; the skin is dry and flabby, with a slight tint of jaundice. The entire muscular system shows a marked degree of atrophy and loss of tonicity. The pupillary reflexes are sluggish, but react to light, both directly and indirectly, and to accommodation; the cremasteric reflex is absent, also the knee-jerks; the Babinski reflex is positive.

The eyes are sunken and the corneæ are jaundiced. The tongue shows a number of small ulcerated patches on the margins, and fissures on the dorsum about one millimeter in depth extending two or three centimeters from the tip. The chest on palpation reveals normal expansion; vocal fremitus is increased in all areas due to the thinness of the chest wall; on percussion there is resonance thruout, and on ausculation the respiratory sounds are exaggerated.

The heart shows slight evidence of atrophy; the first sound is shortened in all areas and weakened; a hemic murmur is audible in the mitral, also the aortic regions and is transmitted from the latter into the larger vesssels of the neck.

The area of liver dullness is markedly decreased in size, beginning at the level of the fifth rib and extending 14 centimeters in

the anterior axillary line; on deep inspiration it descends about half centimeter and is very hard with an irregular edge. Exquisite tenderness accompanies palpation of the entire epigastrium; deep palpation is not permissible. The spleen cannot be felt and does not descend on deep inspiration; the remainder of the abdomen is negative. The genitalia are negative.

Blood Examination:

Total White Cell Count.....	6,250.
Total Red Cell Count.....	1,520,000.
Hemaglobin.....	30%.

Differential White Cell Count:

Polymorphonuclear Neutrophiles.....	80%.
Lymphocytes.....	18%.
Endothelial Leukocytes.....	2%.
Eosinophiles.....	0%.
Basophiles.....	0%.
	100%.

A few Estivo-Autumnal Malarial Parasites, ring forms. Numerous nucleated red corpuscles, macrocytes, and basophilic red cells.

Urine Examination

Clear, amber in color, acid in reaction, traces of bile and albumin present. Specific gravity 1025. Negative for pus. Finely granular casts in moderate numbers.

Feces Examination

Ova of *Clonorchis sinensis.*

Progress notes: The patient was given quinin bisulphate daily in doses of 15 grain every 8 hours. On the second day the temperature rose to 102 degrees (F), immediately dropping to normal and remaining as such thruout; improvement in the general condition was noticed; he vomited at times, but only between the quinin administrations.

The quinin was reduced to 10 grains on the third day, and frequent blood examinations failing to reveal malarial organisms the quinine was further reduced to 15 grains daily. On the sixth day following admission the patient seemed to be getting worse; vomit-

ing became protracted and no nourishment could be retained. Hypodermoclysis was instituted, but he continued to sink very slowly. Ten days after admission death ensued.

As no autopsy was obtainable complete proof of the condition could not be obtained, but the general clinical picture, and the laboratory findings were sufficient to establish beyond doubt the cause of death.

Conclusions.

Clonorchiosis is reported for the first time in the Island of Cuba.

The gradual introduction of the disease into the New World should stimulate efficient measures to prevent it becoming endemic provided that the intermediate host exists.

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PROCEEDINGS OF THE AMERICAN SOCIETY OF TROPICAL MEDICINE

THE CONSEQUENCES OF THE EUROPEAN WAR FROM A MEDICAL POINT OF VIEW.*

By D. RIVAS, Ph. D., M. D., Philadelphia.
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Almost three years have elapsed since the gigantic struggle of the European conflict, unparalleled in the history of the world, has kept nations engaged in a war of destruction and desolation, and although this struggle clearly shows the causes and traces of its beginning, it appears so far to have furnished no prospect as to when it will end. On the contrary, the conflict rather tends to disseminate further and further the germ of destruction which originated it, and having at last reached our shores, it is time for us to attempt to cope with circumstances which the peril demands.

* Read before the American Society of Tropical Medicine, New York City, June 5, 1917.

To the philosopher, wars are merely natural sequences in the evolution cycle of the human race. To the economist they are the source of speculation as to the best means of readjusting the social equilibrium. To the rulers of those countries engaged in the struggle, wars make them the prototype of patriots and exponents of the principle of right and liberty. To the statesman, and diplomat in general, wars are perhaps a source of satisfaction, in that they may see the realization of their prophecies and chimerical speculations. To the financiers wars serve the purpose of speculation in regard to the most feasible means of supplying the fuel, and the gold which keep alight the flame of wars. The general, aided by his instruments of destruction, sees in the war a means of testing and putting into practice and actual demonstration, his strategic combinations. The soldier, the real altruistic martyr, sacrifices the most precious gift of nature, "his life," for the welfare of his country. The agriculturist is eagerly engaged in supplying food, and likewise the chemist, physicist, engineer, etc., all professions and specialties in general, have a duty to perform during the conflict. All the resources of the country have to be used to the best advantage for the successful accomplishment of the final test, the Victory.

But since for the successful attainment and maintenance of all these varied offices and duties, it is of primordial importance that the health of each and all of the units engaged in the conflict, the individuals, should be maintained, in this capacity the modest and unpretentious, perhaps obscure, but not the least essential, cooperation of the medical profession, and of hygienists in particular, takes a preeminent part in the struggle.

That diseases are often more destructive than wars themselves, is a known fact. To this no doubt may be attributed the disastrous consequences of the Crusades and of many other conflicts of which history furnishes numerous examples, and this explains for itself that the lessons learned from past experience have paved the way for the mission of the medical man and hygienist in our modern warfare, to be regarded as one of the most important.

It is only natural that in war most of the attention of the medical profession should be chiefly directed primarily to the selection of those physically and mentally fit for the struggle, and subsequently to hospital work for the purpose of taking care of the un-

fortunate, sick and wounded. But by doing this alone are we not neglecting another field of action, perhaps the most important since it is not concerned with the welfare of the present, but of the future generations, namely the prevention among the troops of certain chronic affections, commonly known as parasitic disease?

This field of activity becomes most important when, thanks to the modern discoveries made in recent years in parasitology and tropical medicine, the nature of most of these diseases, their mode of prevention and their path of transmission and disemination have become better understood.

Generally speaking, in regard to the nature of these affections, it is known that parasitic diseases in contrast to most bacterial diseases, are as a rule slow in onset, of long duration and of uncertain termination, which usually ends fatally, because most of them are incurable. Not uncommonly during the greater part of the period of affection, the patient may not even show any appreciable symptoms of the disease for several years, but nevertheless is meanwhile a carrier of the parasite which causes that disease and consequently he is a menace to the community. Leprosy, filariasis, hookworm disease, malaria and many other diseases of tropical countries may be cited as examples of such affections. On the contrary, such bacterial diseases as diphtheria, cholera, plague, etc., are acute, of short duration and end in death or complete recovery and usually complete immunity. They give, as it were, warning of the danger, with the result that they are easily and timely controlled, while parasitic diseases develop insidiously and consequently, as is usually the case, the attention of the physician and hygienist is called too late.

It may be added in this connection that the fear which bacterial diseases usually awaken, in contrast to the neglect with which the parasitic diseases have been regarded, is an erroneous conception, because while the former are of short duration and end either in recovery or death, leaving no traces of it, the latter are of long duration, may give no warning of their existence as already stated, are transmissible during the time of the affection, and commonly make of the patient an invalid, with the result that he becomes unfit to perform his social obligations and consequently is a burden to himself, to the state and country and a constant menace to the community. The study of the hygienist therefore should not be con-

cerned so much with the welfare of the individual as with the community.

It is a known fact that war is the means of dissemination of diseases from country to country and even to other continents. History shows that most of these parasitic diseases, now prevalent in Europe have been imported from the Orient following the line of trade and of the return of troops. It has been even suggested that the downfall of the Grecian civilization was brought about by the importation of malaria by troops of Alexander on their return from the Orient, and the same has been said of the Roman Empire. The Roman legion not only imported these diseases from the Orient, Greece, and Africa, to Italy but also disseminated them through Europe. The history of the dissemination of some bacterial and parasitic diseases from the Orient to Africa and Europe and then to America may be summarized as follows:

Leprosy: References to this disease is found in ancient Japanese books. Hippocrates says little concerning it, but Aristotle described it better. The disease was imported from the Orient into Egypt by Alexandrian troops (about 300 B. C.). From Egypt it was carried to Greece and later to Italy by means of troops of Pompey, and finally was disseminated through Europe by the Roman legions and more especially later during the Crusades by the return of the troops from the East. Leprosy became so prevalent in the South of Europe and France in the thirteenth century, as to enforce both the Church and State to dictate severe prophylactic regulations in order to check the ravage of the disease.

About the end of the fifteenth century leprosy was introduced into Madeira and Canary Islands and then into America to an extent by the Spaniards, but chiefly by the English negro slaves to the West Indies, where the disease is most prevalent in America at the present time.

It has been suggested that leprosy existed in America in ancient times but as there is not sufficient evidence to support this, it has come to be believed that the disease was imported to this continent from Europe and Africa.

Cholera: It is well known that the home of this disease is India. Cholera was known in that country from the most ancient times. Charaka and Susruta describe symptoms which most probably refer to cholera.

The spread of cholera from India to Europe and America has occurred at different times, the most important epidemic of which was that of 1826, which continued until 1837. It reached France (via Persia, Tabriz, Tiflis, Astrakhan, Moscow, Poland, Austria and Germany and England) and finally the United States, Mexico, Cuba, Central America and the north of South America. The next important epidemic was that of 1863 to 1873, which was spread by way of Persia and Arabia to Europe and then to America.

Bubonic Plague: This disease commonly known as the "Pest," like cholera, also originally is a disease of the East, and at different times has spread to Europe. It was imported to America by the Negro slaves. The most important wide spread epidemic of plague was that of 1904, which reached Persia and Russia in 1906 and subsequently spread to almost every country, Arabia, Egypt, Tunisia, Algeria, Scotland, and to the United States and South America.

Ankylostomiasis: This disease commonly known as hookworm disease, is caused by a small parasite nematode inhabiting the intestine. It is believed that the parasite originally existed in Africa from which it was disseminated to America by the negro slaves. The disease now is cosmopolitan, being found especially in tropical and subtropical countries.

Filariasis: This disease commonly known as elephantiasis is another legacy of the Orient and Africa. It is produced by a nematode *(Filaria bancrofti)* which inhabits the lymphatics of the pelvis. The home of the disease is probably Asia, it was imported to Africa, and then to America by the negro slaves, carried especially to the West Indies where it is now most prevalent in America.

Schistosomiasis: This disease is produced by a parasite trematode which inhabits the blood. Three different species of parasites, namely, *Schistosoma japonicum,* S. *mansoni* and S. *hematobium* have been found to be the cause of these diseases each one giving rise to symptoms corresponding to the location of the parasite or their eggs in our bodies.

The disease originated in the Orient, where it is most common and has been introduced into America by the trade. It is now common in the West Indies and the north of South America, and not a few cases are to be found in California and some of the other

western states and north of Mexico, imported by the Japanese and Chinese population in those places.

There are other diseases common to Africa and to the Orient which might be mentioned in this connection as having been imported to America and a few others which though at present they do not exist in this country may perhaps make their appearance in the near future. The above mentioned may suffice to clearly show the menace in which this country may be exposed in the future in consequence of the present European conflict.

This danger naturally becomes more seriously recognized when we take into consideration the nationalities with which the American army will come in contact abroad, more especially in France, where, since the beginning of the war there has been a constant ingress of troops from almost every part of Africa and the Orient.

It requires but a moment of thought to realize that France at present is subject to similar conditions as in the time of the Crusades, that is, that it represents the centre for the organization of the armies now engaged in the struggle, and consequently it is in France, more than any other place, where the attention of the American hygienist should be attracted. With our knowledge and past experience concerning these diseases, and in realization of their danger to this country, it is essential and of the greatest importance that special attention should be given to carefully and systematically carry out appropriate prophylatic regulations among the troops while abroad as well as after their return to America in order to safeguard the health of future generations.

It will be therefore indispensable, if America is to take an active part in the present European war, to organize a body of competent physicians and experts in the laboratory diagnosis of these diseases, in order to safeguard their importation to America by the returning troops. It may further be suggested that after the war, all soldiers returning from Europe and from France in particular, should be subjected to a rigorous examination, and if possible to a quarantine before being permitted to enter the country.

It is time for us to acknowledge the truth of the situation and to realize that while the laudable work of the skillful surgeon and clinician in general at the front is concerned especially with the welfare of the troops, it is for the laboratory worker and the hygienist and the parasitologist in particular to look after the health

of the future generation upon which depends the work of reconstruction after the war.

There is nothing to gain but much to lose in failing to realize the real truth. That diseases common to those countries have been imported into France with troops from Africa and the Orient cannot be denied, and that the soldiers by coming in contact with these troops will become infected with these parasitic diseases and import them to our shores, unless proper prophylatic regulations are timely enforced, admits of no doubt and the sooner we realize the gravity of the situation the better it will be for the future generations in our country.

In view of this, the writer, guided by one of the highest duties of the medical profession, namely: the health and welfare of mankind, and not the least, inspired by that patriotic love, common to us all for the future of the Americas, may be allowed to suggest that the American Society of Tropical Medicine brings the above facts to the knowledge of the American Government, and that if desirable the society appoint a commission to that end so as to obtain from Washington the proper cooperation for organizing a campaign of prophylaxis among the troops abroad against the real and most dangerous enemy of our future generation, namely: against those chronic bacterial and parasitic diseases such as leprosy, malaria, filariasis, ankylostomiasis, schistosomiasis, etc., common to Africa and Oriental countries.

Further, it may be suggested that the commission formulate plans for the organization of sanitation camps provided with the necessary instruments, laboratory appliances, etc. and other facilities and requirements for the study of these African and Oriental diseases, with the chief point in view of outlining appropriate prophylatic measures and regulations for the prevention of their importation into this country. Likewise the organization of a quarantine station in some of the islands in the Atlantic for the returning army where every soldier and officer, without exception, should be submitted to a careful observation and study for some time, consisting in the examination of the blood, excreta, etc., before entering the country.

History clearly shows that wars have been the end cycle in the evolutional development of civilization. The most powerful nations have come out of the struggle feeble and weak and soon died out, due no doubt to unpreparedness against the natural consequences

common to the wars, namely: the importation and spread of those diseases which soon deprive the human race of the energy which health alone brings. The fall of the Egyptian civilization, of which merely vestiges are left; the sudden termination of the Greek culture; the slow but sure disintegration of the Roman Empire and the centuries of lethargy of the Middle Ages in continental Europe, probably were due, as have been suggested, to these causes.

It is perhaps not far from the truth to predict that the same fate of Greece and Rome awaits the Americas unless timely attention is given to prevent after the war the importation to this country of those diseases common to Africa and the Orient. Preparedness therefore, should not merely consist in fitting our troops for the present conflict, as it has been properly done, but also to safeguard the health of the generations to come upon which will fall the duty of maintaining the prosperity and welfare of this country.

INFECTIOUS PSYCHOSES, ESPECIALLY IN TROPICAL DISEASES.*

By DR. A. AUSTREGESILO, of Rio Janeiro, Brazil.
(Translated for the JOURNAL by Dr. Charles Chassaignac, New Orleans.)

Psychic troubles usually have two etiologic sources; intoxication and destruction. Intoxications may be infectious or not, endogenous or exogenous.

It seems that the intoxications are the chief source of the psychoses or the psycho-neuroses because the nervous system, representing the defense of the organism, is the most sensitive to said intoxications.

Some authors might state that paranoia and the maniac depressive psychosis are not produced by a known intoxication. These are degenerative states, that is of sensitiveness to endogenous or perhaps endocrinous intoxications. We well know that emotions bring to the organism, loaded with intoxication manifesting itself by digestive troubles, insomnia and serious disturbances of metabolism, which form vicious pathologic circles.

The mental syndromes of infectious origin have always borne the influence of the French, German, or English schools, according to the classification adopted by the physician.

* Read by title before the American Society of Tropical Medicine, New York, June 5, 1917.

With Kraepelin I shall study the following syndromes of the infections: a. the febrile deliriums; b. the infectious deliriums; c. the post-infectious states of psychic weakness. We must refer to the exhaustion psychoses, that is the delirium of collapse and the amentia of Meynert.

Kraepelin's view is analytic. Authors in general include the above syndromes under the denomination of the infectious deliriums and psychoses.

According to Anglade, the infections, whether acute or chronic, are frequently the causes of mental troubles by various mechanisms. In the acute infections, during the febrile period, these troubles are due to a cerebral intoxication by the microbian toxins and the products of the fever; in convalescence they are due to the more lasting results of the toxins on the cortex. During convalescence the troubles are sometimes of the acute state, at times mental confusion, at others an ill-defined delirium.

The chronic infections occur by intoxication of microbian origin, by auto-intoxications, or by infectious destructive lesions, such as accompany syphilis or tuberculosis.

The febrile deliriums have no unifom symptomatology.

Several authors, like Liebermeister, Kraft-Ebing, Ball have treated the question in a more or less extensive manner.

We can classify febrile delirium according to intensity into: 1st degree—malaise, psychic torpor; 2nd, alteration of consciousness is deeper, psycho-sensorial troubles appear accompanied by more or less disordered acts; 3rd, ubinilation of consciousness is greater, confusion is accentuated; 4th, great general torpor, profound weakness sometimes almost lethargy and coma-vigil. All febrile diseases may produce the same delirium, such as variola, scarlatina, erysipelas, acute articular rheumatism, grippe, yellow fever, as I have had occasion to verify, bubonic plague, malaria, etc.

The prognosis of this febrile delirium is rather grave. Kraepelin's statistics show a mortality of 35.6 per cent. The duration is generally one week, sometimes longer.

The differential diagnosis is to be made between states of excitement of different psychoses, especially those of exhaustion. *(Erchopfung psycose).* The infectious deliriums proper hold a more specific place in psychiatric nosology, constituting the infectious psychoses and psychic weakness.

In fact, we know that the infections may present morbid mental states from the outset to convalesence, such as the cerebral torpor of Ball (mental confusion of the first degree), up to the amentia of Meynert (incoherence, chaotic condition of ideas, various hallucinations, etc.), as may be seen from the work of Pilcz.

I need not reiterate the mental troubles which occur during European diseases such as typhoid fever, so well studied by Baillarger, Simon, Sauvet, Voisin, Percy, Smith, Pagliano, Aschaffenburg, Deiters, Aegis and others; variola (Kraepelin, Thore, Claye, Shaw, Luingaud, Emminghaus); grippe (Althaus, Piles, Ladame, Bidou, Jeoffroy, Voisin, Hutchings, Camia, Mosert, Jatrowitz, Kraepelin, Austregesilo); acute articular rheumatism (Moebins, Zinn, Kraft-Ebing, Guislain, Giraud, Mabille, and Lallement); pneumonia (Kraft-Ebing, Kraepelin, Fontaine, Orbeil, Regis, Klippel, etc.).

I shall speak of acute and chronic diseases peculiar to warm countries. Tropical diseases are not exceptions to the general rule.

MALARIA. In paludal infection, authors have described mental troubles with either the character of febrile delirium, or of infectious delirium, or of the delirium of collapse, these three including the paludal psychosis proper.

Kraft-Ebing and Kraepelin state that the infectious delirium is like that of variola and the initial delirium of typhoid fever. States of very violent excitement, of anguish with serious psychic troubles leading to thoughtless acts, may be observed. These states may be rapid or prolonged, sometimes accompanied by convulsive attacks, resembling the obnubilation of consciousness of epileptics. They sometimes assume the febrile rhythm, that is the intermittent or tertian type. Some authors have described larval types, of which I doubt, wherein the febrile attack is substituted by delirium. The larval type of delirium is preceded by a more or less intense febrile reaction, except in the algid pernicious type in which the mental state is that of the delirium of collapse.

Marchiafava and Bignami state that the comatose pernicious form is frequently preceded by delirium of the febrile type. They admit with the Brazilian authors of a delirious pernicious form in which delirium is the dominating syndrome and which may assume the clinical physiognomy of acute delirium, followed by a state of torpor and coma. "An euphoric state of excitement may precede the delirium, accompanied by auditory and visual hallucinations

which may be followed by violent and absurd acts." One may also observe spells of calm delirium even in the pernicious delirious form, that is with the type of elementary mental confusion.

These spells are usually the pernicious equivalents of paludal infection. These mental troubles may be accompanied by somatic and the psycho-somatic syndromes like aphasia, hemiplegia, amaurosis, tetany, bulbar and cerebellar phenomena, tremors, etc., as signalized at home by Fonseca.

Mental paludal troubles may then assume several clinical aspects: febrile delirium, infectious delirium, of greater consequence than the preceding, consequence of the pernicious type or of tropical fever, in the form of mental confusion, either excited or light, taking sometimes the twilight state of the epiletics.

Following the active infection, during convalescence, there occurs post-infectious psychic weakness; sometimes the Korsakoff type of polyneuritic psychosis.

The malarial cachexia may be a cause of psychic delay, establishing simply a lowering of the intellectual level; at other times may lead to paludal infantilism, admitted by a large majority of observers. The thyroid gland constitutes the essential pathogenic instrument.

Those are about the ideas of Lemoine and Chaumier in their writings on the paludal psychoses; in the forms cited delirium may appear, but then, while in the first form it assumes the noisy type of the deliriums of pyrexia, it is calmer in the second, slower and with a tendency to chronicity. Outside of these two hypotheses, according to the same authors, intellectual troubles follow in former malarial subjects in whom the disease exists only in a latent state and the larval accidents generally substitute the febrile phenomena.

Malaria while generating true psychoses may predispose to the development of latent mental states; independent of the paludal psychoses, such as mania and melancholia (depressive maniacal psychosis) observed by Sebastien; alcholic delirium, mentioned by Marandon de Montyel, paranoiac periodic delirium, as in a personal case, the resumed observation of which follows:

1. Domingos, white, aged 32, single, a Brazilian. Parents living and healthy. Has three brothers and two sisters. Moderately habituated to alcohol and onanism. Always irritable. On bad terms with his family. Having no money, he came on foot from the interior of Brazil to Rio Janeiro, the trip lasting 25 days. Passing through malarial zones he contracted a tertian infection. He began to notice that with his long

beard he resembled Jesus Christ and, convinced of his role of Redeemer, he determined to teach the precepts of virtue to the people. He had auditory hallucinations, mingling with his religious delirium, rather in compatible with his acts and his life. He entered the National Hospital for the Insane in a febrile state. His blood revealed the presence of the tertian parasite. Quinin treatment was instituted and the febrile attacks as well as the paranoiac delirium ceased. He left cured.

There is no general paralysis of malarial origin, as is admitted by a few authors, such as Rey and Bonet.

The cases of malarial aphasia are not rare. I may cite the case recently published by Prof. Froes; a few unusual syndromes, as the tremors of the disseminated sclerosis type, like the case observed by M. Britto; the cerebellar syndromes as in the observation of Mendonca and already mentioned by the Italian authors, as Marchiafava and Bignami; neuroses, like malarial neurasthenia, described by Lejeune (thesis, Lyons, 1890), by Tessier (Bul med., 1893) and which we are accustomed to see in the rubber explorers of North Brazil (Amazon), in travelers, soldiers, compelled to cross the malarial zones and attacked by the grave malaria of these regions; epilepsy, hysteria, etc. Alcoholism may accentuate the clinical aspect of the malarial neuroses and psychoses because the residents in the malarial regions often abuse of the strongest alcoholic drinks, sometimes taken ignorantly as prophylatics.

YELLOW FEVER.—The subject has been little studied. Yellow fever, as all infections, holds a place in the etiology of psychoses. Among us M. Helvecio de Andrade was the first to study the mental perturbations consecutive to typhus icteroides. Later M. Carlos Eiras and Prof. Marcio Nery studied the same subject. M. Helvecio de Andrade called attention to the psychic disturbances in convalescence of yellow fever and claims priority on the subject.

The cases of M. Carlos Eiras are more minutely described for they have been sketched by a specialist's hand. In this alienist's article the clinical evolution, symptomatology etc., are considered mostly from the psychiatric viewpoint.

Prof. Marcio Nery adds M. Eiras' observations to his own and gives a nosological classification.

Generally the mental disorders appear from the seventh to the fifteenth day after the icteroid infection. During the period of invasion and the attack, violent febrile delirium is rarely seen.

The post-icteroid mental troubles, according to the authors quoted, are sometimes of the type of simple confusion, at times

similar to the twilight state of the epileptic, or the amentia of Meynert, often simulating the maniacal fury of the ancient authors.

Prof. Marcio Nery describes the mental perturbations of yellow fever, or the icteroid psychoses, as he calls them, and groups them as follows: 1st, group includes the cases of transitory or permanent confusion. 2nd, group comprises the maniacal states. 3rd group, the melancholic states. 4th group, includes the multiple cases wherein the icteroid infection awakens the latent neuroses and psychoses.

This tentative classification is good if we modify the words *maniacal* and *melancholic*. Really yellow fever may show febrile delirium or the true psychoses. The post infectious psychoses are always of a chaotic character.

We may deduct from the observations of Eiras and Marcio Nery that several types of confusion may be observed, at times simple, at others with twilight states, sometimes with intense agitation and hallucinations, again with depressive states (but rarely). Hence the expression "maniacal and melancholic states" must not be included in the group of mental perturbations of icteroid origin, as these states are scarcely similar to the states of mania and melancholia which is a feature of maniac depressive insanity.

We should, however, admit as mental troubles in yellow fever: 1. Febrile delirium. 2. Different degrees of mental confusion, or better, infectious states of psychic weakness, constituting the icteroid psychoses. 3. Constitutional psychoses awakened by the infection. The neuroses should not enter into this group.

The prognosis in these psychoses is variable, but usually favorable. In Prof. Nery's cases, 10 ended in cure; one in a slight psychic weakness and one in complete dementia. In these patients there was a pronounced psychopathic taint.

The treatment must be prophylactic and curative.

Prophylactic—the individual should be toned up immediately after the infection, as the patients generally resume hard work.

Curative—nothing special to be said which would not apply to the psychoses caused by other infections.

Plague. Bubonic plague, like all other grave infections, includes psychopathic deviations in its symptomatology. While medical literature on the subject is not profuse, from what is stated by the authors and what I have observed, it may be affirmed that the Levantian disease is not an exception. Anglade simply states that in

plague delirium without specific character is observed. Pöch, in the Treatise of Tropical Diseases (Mense) states that the *sensorium* may often be involved. Delirium may be benign, or wild, or murmuring, or lucid, later becoming furious (Todsuchfällen). Frequently, continues the German author, delirium leading to flight may be observed. Attacks of meningitis with hallucinations sometimes supervene. During convalescence apathy and mental weakness may come on, besides other somatic syndromes of nervous origin.

In its different forms, especially the grave, plague may show febrile delirium, of the calm or the furious type. The delirium may be the expression of the febrile infectious reaction or of the intercurrent alcoholism. True infectious delirium may accompany the Levantian disease. Infectious delirium may assume several aspects, from the acute oneirismal type (more rare) to acute hallucinatory delirium.

In convalescence a state of psychic weakness supervenes, or cerebral torpor or marked mental confusion, sometimes with psychic depression simulating a melancholic state. I have had occasion to verify the latter in a case at the hospital of Jurujaba, that of a young girl in a state of pseudo-melancholic weakness, with marked lack of memory, tending to sadness, etc.

Dr. Tavares, of Macedo, then director of the hospital, in his report on plague, published in the *Brasil Medico,* reports cases with more pronounced mental troubles. This is how he expresses himself:

> "Delirium is the most frequent of all the nervous symptoms of plague, which was noted in all symptomatic degrees. I have had occasion to observe from moderate delirium, the loquacious, up to the wild and that of persecution. In two cases mental alienation followed violent and prolonged delirium. One of the patients was taken into an asylum after recovery from the plague infection and was discharged cured; another died, presenting clinical phenomena of lipomania. In two patients delirium created a tendency to suicide."

While the description does not come from a specialist, it may be seen that the clinician presents a good observation. We find synthetized therein cases of febrile delirium, of amentia, of post-infectious psychic weakness which may lead to special mental states.

Prof. Goncalo Moniz, of Bahia, in a second work on plague, speaks of mental perturbations observed, similar to the above described.

Prof. Juliano Moreira has had occasion to corroborate in his practice two cases of plague psychosis, ending in the delirium of collapse of Kraepelin.

I transcribe two observations contributed by Mr. Moreira:

Obs. 1. M. J. S., 32 years old, Brazilian, single. Heredity—of slight value, according to the family's information. Previous history—Good health up to a certain point, then he commenced to have a bad stomach; he became nervous (as stated by a brother). He did not drink usually. History of the delirium—After a day of intense work in the business place in which he was employed he felt weak, his legs giving way. He went to bed without fever, but could not sleep. Thinking that he had fever in the morning, he sent for a physician, who prescribed a diaphoretic and reassured the family. By night the patient began to complain of some mental confusion and of not seeing well the people about him. Summoned again, the physician found his temperature 37.8° C. and some delirium. His condition being identical the next day, with even an increase of mental perturbation, it was determined to call in consultation a specialist in mental diseases. Having been summoned, I found the patient, oblivious of place, of time, changing the names of persons, a little anxious, with an uneasy expression, but without saying what troubled him. From time to time he raised his head from the pillow, looking around as if seeking to recognize something (illusions of hallucinations). When asked how he felt, he pressed his forehead and said he was foolish (literal). After he uttered incoherent words or repeated my questions with effort and sometimes all twisted. A careful examination revealed nothing abnormal. Axillary temperature, 38° C. There was no adenitis. The next day the signs of mental confusion increased. The patient, whose ideas yesterday were chaotic, was now incapable of recognizing any one of the family; hallucinations developed: angels flying, a knife-grinder working actively in a corner of the room and seeing sparks fly from the millstone transforming themselves into lizards. Although irrational, some word uttered near him would at times make him understand his inability to fix his attention. He would then exclaim: "You want to confuse my ideas;" "You do not say one thing in accord with another," etc. Variable temper, motor excitement; the patient tried to get out of the room, gesticulated, muttered. Insomnia. He loses weight visibly. Temperature 38° C. Baths. Nauseated at night. Photophobia. The next day, temperature 40°; tongue coated, vague look, skin dry, breathing rapid. Painful swelling of a femoral gland. The diagnosis is established. The infection which had produced a true infectious delirium is identified, ending in the delirium of collapse of Kraepelin. The patient is transferrerd to the plague hospital, where the disease continues to develop and ends in death.

Obs. II. M. P. C., twenty-two years, Brazilian, medical student. Heredity: Father a neuropath; mother is an alcoholic. History of the disease: Malaise, slight chills, light cephalalgia, 37.5°. At the end of the second day, signs of mental confusion, auditory and visual hallucinations, the latter more marked. Third day, confusion of time and place increased. Temperature, 37.6°. Fourth day, pains in inguinal regions, right glandular swelling, 37.8° Sixth day, inflammation of glands of both sides, 37.8 ; small pimple on the right; bacteriological examina-

tion positive. Anti-plague serum injected; the patient begins to improve. The psychic troubles diminished progressively. He began to know the members of the family, but not the physician. The case ended in cure.

I shall mention in passing a case I had occasion to observe and autopsy at the Paula Candido Hospital, wherein the nervous and psychic reactions were nearly all included. High fever, delirium; phenomena of meningitis and coma, such were the rapid evolution of the disease. There were no ganglia nor signs of pneumonia.

The autopsy revealed intense congestion of the meninges and the cerebral cortex, and glandular lesions of plague.

By collecting the facts observed we can see that mental perturbations are frequent in plague.

Febrile delirium appears. Infectious delirium sometimes follows, with mental confusion, with psycho-sensorial troubles, flighty ideas, sometimes a state of agitation, with the appearance of acute delirium. The delirium is at times calm, loquacious, muttering, sometimes oneirismal, rarely in the form of the delirium of collapse of Kraepelin. After the infection in some cases the psychoses from post-infectious weakness appear, especially by exhaustion. In two cases reported by M. Macedo, the mental perturbations lasted longer than the febrile state, extending so long after convalescence that the patients had to be interned. States of confusion, with marked depression, may be the expression of post-infectious troubles. The prognosis is generally favorable.

One case of M. Juliano Moreira ended in death, one of M. Macedo in a persistent phychosis.

The treatment is not different from that of similar psychoses.

CHOLERA MORBUS.—Although there has not been cholera in Brazil for a long time, a short reference to it is due. The studies of Ball, Beglas, Delasiauve and published in *l'Encéphale* (1885), in the *Annales Médico-psychologiques* (1893) demonstrate that the mental troubles consecutive to cholera are like the other infectious psychoses and usually show the type of Meynert's *amentia,* as in the case of Beglas.

According to Krause and Rump (Mense's Treatise), the psyche is little altered during the algid state, and in some patients a little apathy is observed, followed sometimes by delirium, torpor and coma.

Recently Obregia and Pitulesco *(l'Encéphale,* No. 5, May, 1914)

have described the psychoses of cholera. The authors include, first, an asthenic form wherein the motor troubles may reach the state of stupor, with or without physical euphoria; second, a delirious form. "The patients forming this group are asthenic also, but slightly agitated, talking continually like maniacs; their words are senseless." To confusional agitation is added at times a slight motor agitation. Third, convalescence does not occur equally and in the same manner in all patients, from the psychic viewpoint. At times a state of physical euphoria follows, in contradiction to the weakness of the patients.

In a few cases there was a state of *post-choleraic astheno-mania;* that is, spells of agitation which disturb convalescence, the disease retaining its stamp of asthenia.

"Finally, about 60 per cent of the choleraic patients showed no mental troubles during nor after the disease."

I know of no observation regarding mental troubles in bacillary dysentery, Mediterranean fever, Nasha fever, dengue, kalazar, boubas, etc. We can apply to these patients what Profs. Juliano Morena and Afranio Peixoto wrote in their report to the Congress of Lisbon: "In meeting fields prepared by neuropathy, the infections hatch mental troubles, as there is nothing special in the various psychic manifestations of a pathological order."

SLEEPING-SICKNESS, according to the descriptions from the classic pen of Manson, Mense and others, produces cerebral perturbations, usually non-vesanic, connected with the symptomatology of infection: somnolence, torpor, coma and death. Nevertheless, the disease sometimes begins by epileptic attacks, by spells of agitation resembling mania. According to Le Dentec, sleeping-sickness in its pre-hypnotic or febrile period shows troubles of character, of memory, of fixation and of association, deficit of intelligence, etc. Many perturbations of the nervous centres are met with in the new Brazilian trypanosomiasis (disease of Chagas), which is now beginning to be studied.

LEPROSY.—Opinions of authors vary as to the existence of a leprous psychosis. Prof. Juliano Moreira, in a review with report of personal cases, does not admit of a leprous psychosis, properly speaking. Many authors, such as Sainton, Dagonet and Duchamel, Finzi, etc., barely refer to mental troubles occurring in lepers. Kraepelin refers to leprosy and to the work of Moreira in the last edition of his treatise on psychiatry.

I have had occasion to observe the following case:

S. M., 40 years old, white, single, Brazilian. Entered the hospital for the insane, Pinel section, on January 12, 1907. Notes of the Pavillion of Observation of the Psychiatric Clinic: "Alcoholic habits; measles, malarial fever and leprosy. Physical injury; ideas of greatness; insomnia; visual and auditory hallucinations. Changeable temper; expression gay; fibrillary tremors of the tongue and the digital extremities; abolition of the plantar reflex and slowness of the cremaster reflex."

Information of the Section: "Father living. Two brothers, one with leprosy. Indulges in alcoholic drinks. Euphoric physiognomy. Small stature; muscular atrophy of upper limbs, Duchenne-Aran type. Loss of phalanges, ears thin. Cranio-facial asymmetry; prognatism of lower jaw; slight fibrillary tremor of tongue; teeth irregular and bad; incisives lacking. Ulceration of nasal septum. Extended patches of discoloration of the skin on the trunk and the lower limbs. Circulatory apparatus, normal. Respiratory apparatus, normal. Other organs more or less normal. Zones of anesthesia corresponding to the leprous spots. Tactile and thermic sense present everywhere outside of the spots. Walk slow, tremor of hand in extension. Has never had convulsions. Patellar reflex normal. Retarded plantar and cremasteric reflexes. Nutrition good. He sleeps and eats well. Has no idea of time and place. A certain degree of mental confusion. Temper unstable. Hallucinations of sight and hearing. Unsystematized, delirious ideas. Amnesia of recent and ancient facts. Low intellectual level. Speech a little dragging."

Combining the mental troubles—that is, confusion, dysmnesia, lack of orientation, slightly delirious ideas—I was compelled to classify the case among the infectious psychoses of chronic evolution, and the symptoms presented easily justified the diagnosis.

We see by this exposé that the authors to-day have not uniform opinions on the question of leprous psychoses. Prof. Juliano Moreira closes one of his articles as follows:

"The leprous infection has no special form. By coincidence, though not very often, the greater number of forms of mental alienation have been observed. The complications usually seen in leprosy (tuberculosis, streptococcic infection, etc.) may cause the appearance of psychoses in the leprous. The mental state of lepers changes much according to the hereditary antecedents and the education of each one."

While accepting the conclusions of the distinguished leprologist and psychiatrist, I nevertheless think that leprosy itself may cause a psychosis of infectious type. In this line, Meschede publishes one case of acute hallucinatory delirium; Orbeli, two cases of amentia. Juliano Moreira classifies the second of his observations, whose symptomatology resembles that of infectious delirium, as a delirious episode. M. Franco da Rocha's third case begins with the acute

types: "The patient had visual hallucinations, motor agitation, ideas of grandeur, of an absurd aspect, and at the same time manifested an evident state of confusion." The diagnosis, on account of the state of dementia and the absurd delirium of grandeur, was that of paranoid dementia and mutilating leprosy.

According to me, the case little resembles paranoid dementia. In the beginning it was an acute psychosis, amentia type. Later it was a permanent state of dementia.

My case recalls exactly the type of infectious phychoses. I believe lepers may present an acute hallucinatory delirium, amentia; in a word, an acute psychosis with consecutive confusion and dementia. In my patient, for instance, there was a delirious episode with great agitation, and, although the mental agitation improved, death ensued. Since, in these cases, confusion and other mental states may be observed, listed by authors in the group of infectious psychoses, I believe I can conclude that a leprous psychosis exists. The reasons are clear: on one side, clinical observation; on the other, leprosy is a chronic infection, and, as such, may produce psychoses, as do tuberculosis, syphilis, sleeping sickness, ankylostomyasis, etc. This does not prevent a leper from presenting other mental perturbations independent of infection—depressive maniac insanity, general paralysis, senile dementia, etc. Leprous psychoses proper must be rare.

Beriberi.—This disease is included in the group of infections by several tropicalists like Scheube, Bälz, Manson; the Brazilian authors consider beriberi a syndrome of polyneuritis, which may be either toxic, alimentary or infectious. (M. Conto.) The mental perturbations following are of the Korsakoff syndrome type. Nina Rodrigues, among us, has made special studies; Juliano Moreira and Afranio Peixoto discussed the same subject in their report to the Amsterdam Congress of Psychiatry and Neurology. Prof. Erico Coelho, it seems, was the first to take up the question in a treatise on "A Few Observations on Beriberi Examined from a Psychologic Viewpoint," presented to the Academy of Medicine of Brazil in May, 1886. He calls attention to the psychic disorders of subjects of beriberi, although Silva Lima had already cited troubles of memory in 1872.

Later I shall speak of what I observed at the beriberi hospital, in a few cases of beriberi at the insane hospital, and in my private practice.

Statistics published by M. H. Roxo show that, up to that time, seven cases were entered as beriberic psychoses at the pavillion of observation of the psychiatric clinic.

Prof. Nina Rodrigues, of Bahia, as I have already said, studied the question more in detail and outlined a clinical classification after having verified, from the works of the Brazilian physicians, the existence of mental confusion in the beriberic. In fact, he described three principal forms: Amnesic, which should be called dysnesic; the delirious form, and the confused form. According to Moreira and Peixoto, "from the cases they have studied and the reading of the observations of the regretted professor quoted above, the delirious and confused forms are clearly dependent on a psychic state anterior to the beriberi." These two authors close with a definite doubt as to the existence of mental perturbations in beriberi.

On my part, I accept the psychoses of beriberi for theoretic and clinical reasons. Be it intoxication or infection, beriberi is capable of producing mental troubles; clinical observation, on the other hand, records psychic disturbances occurring in cases of beriberi. I believe even that every beriberic has elementary mental perturbations. Memory cenesthesia, the temper, are frequently altered. The acute cases are the most evident. Sometimes toxic deliriums, coma vigil, various auditory and visual hallucinations complicate the picture of acute beriberi. Besides the mental perturbations of a chaotic type, from cerebral torpor to confirmed mental confusion, I have observed in chronic beriberi a state of pronounced nervosity, a neurasthenic state, hysteroid conditions, depending, it is true, on the soil and chronic intoxication.

The mental perturbation proper of beriberi, such as we have, are of the type of Korsakoff. In fact, in kake, alterations of memory have a preponderating place, either anterograde or retrograde dysmnesia, or both, are observed.

Frequent illusions and a few hallucinations, allo- and heteropsychic desorientation, and an indifferent temper, constitute the general clinical picture of beriberi. I must specially call your attention to the fact that these perturbations are latent. The patients seem mentally sound. Persistence in the investigations and variety in the manner of observing often demonstrate the *latent perturbations* above mentioned. This is why I have said that the elementary psychic alterations are much more frequent

than they seem and that a large number of beriberics have psychic perturbations, either elementary or latent.

In the beriberic psychoses, the prognosis is favorable, although their evolution is long. Exceptionally the patients end with a definite psychic weakness, a terminal dementia.

The treatment must aim at the disintoxication of the organism and the general stimulation of the nervous system.

An example of the psychosis of beriberi is given below in an observation from the psychiatric clinic of the Faculty of Medicine, service of Prof. Roxo:

Soph., white female, 40 years old, Brazilian, was admitted January 29, 1909, and left on February 18 of the same year. Normal constitution. Dynamometer, right side—6—(pressure scale). Skin and mucous membranes pale. Weight at entrance, 43 (kilos); at departure, 45 (kilos).

Digestive apparatus—Tongue slightly coated; liver enlarged and painful, both spontaneously and on pressure; dyspepsia.

Genito-urinary apparatus—First menstruation at 14; has never had a miscarriage; five normal labors. Urinalysis showed low density and a trace of indican. Otherwise normal.

Respiratory apparatus—Normal.

Circulatory apparatus—Tachycardia (94 pulsations). Cardio-pulmonary murmur in the preinfundibular region.

Motility—Walking without assistance is extremely difficult; there is paresis of the lower limbs, with a certain degree of muscular atrophy.

Sensation—The patient complains of pain in the "bones," in the "flesh," in the "articulations," besides a distressing numbness. Plantar numbness is so pronounced that the patient does not feel the ground accurately as she walks. Zones of anesthesia in the lower limbs.

Reflexes—Patellar and Achilles abolished; cutaneous plantar present; abdominal diminished; pupillary present.

Psychic Examination—She claims not to have any psychopathic relatives. Besides eruptive fevers as a child, she had malaria in adult life.

The patient seems sad, crying once when relating her sufferings, contradicts herself, manifesting a tardy and difficult ideation, besides dysmnesia for recent happenings. Her "general weakness" increased a month ago, at the time of her last menses, which came in very small quantity and lasted only one day. She then sent for her physician, Dr. C. L., "who had been treating her beriberi a long time."

Her affectibility remains undisturbed. She relates hearing in her sleep the song she habitually sings; at other times, still in her dreams, she has the sensation that she is being carried up in the air, that she floats in space "as if she had no weight." Also elementary visual hallucinations are noted. The patient progressively improved until the day of her discharge. This is the type of oniric delirium of Regis.

ANKYLOSTOMYASIS.—At the second Latin-American Medical Congress, meeting in Montevideo, Dr. Gotuzzo and I presented a communication upon the existence of mental troubles in un-

cinariasis. It was known from the classical authors of the last century, like Esquirol, that the intestinal worms were responsible for certain mental perturbations. "The helminthic psychoses are very rare and are seen in young myopragics of the nervous system. While these troubles are rare, the *tenias, ascarides, oxyurias* may produce mental disorders in individuals with a neuropathic taint."

The major psychic changes that may be observed during the course of ankylostomyasis have not yet been described at the date of our communication. I am not speaking of slight changes of temper, nor of disorders of taste and appetite, the perversion of which may lead to the greatest extravagances imaginable and which are demonstrated by elementary psychic perturbations.

In 1906, at the National Hospital for the Insane, I had occasion to observe with, Dr. Gotuzzo, three cases of uncinariasis accompanied by pronounced psychic changes, and one could not help noticing the relation of cause to effect. The observations are described in the original report quoted. The first observation related to a case of uncinariasis, *psychic degeneration, a delirious spell with hypochondriac ideas of persecution.* In the second case there was *ankylostomyasis, inferior degeneration, dysmnesia, incoherent delirium.* In the third we observed uncinariasis *with inferior degeneration and pronounced mental confusion.*

In the three cases quoted, it seemed to us that ankylostomyasis was the proximate cause of the mental derangement. The proof: first, the evolution of the disease, as the essential habitual symptoms of the infestation disappeared the psychic changes improved. The parallelism was so evident that it seemed schematic. Second, the kind of delirium in the case quoted by me: symptoms common in uncinariasis, such as pain in the stomach and head, dyspnea, etc., were interpreted by the patient as manifestations of poisoning by certain poisons; in other words, the patient built the hypochondriac and persecutory delirium on his cenesthenic disorders.

We must not be surprised that in some individuals uncinariasis should awaken mental disorders. We know, since Lussani, that ankylostomyasis secretes several toxic substances which, when introduced into the circulatory current, spread into the liquid atmosphere, wherein all of our anatomic elements live, and which is constituted by our internal centre.

To the toxic substances secreted by the parasite, it is necessary to add the poisons resulting from the action of these substances

upon all the tissues, which action has been studied especially on the elements of the blood. Carried, then in contact with the psychic cerebral cells, they will necessarily alter their metabolism; if by heredity or by acquirement these cells are myopragic—that is, if they belong to a predisposed or degenerate individual—it is not surprising that these alterations of metabolism should be transformed into delirium or other mental disorders.

At the time of my first communication to the National Academy of Medicine regarding uncinariatic psychosis, I spoke of uncinariatic infantilism.

Profs. Juliano Moreira and Afranio Peixoto, in the report on "Mental Diseases in Tropical Climates," presented to the Congress of Lisbon, show that ankylostomyasis is a cause of psychic deficit in the descendants of former uncinariatics, "the descendants of these patients are frequently imbecile or mentally weak, without any other cause having united to produce such a result."

My personal researches show that mental debility and a lowering of the intellectual level are very frequent, but imbecility has seemed rare.

We shall end the original report on this subject as follows: Ankylostomyasis must be considered as an exciting cause of dysphrenia. The mental perturbations brought on by ankylostomyasis are of two kinds: the ones described long ago, although otherwise interpreted, are very frequent and ordinarily not intense; these are changes in the character of the appetite and of taste, spoken of by the authors; the others, not previously noted, are much less frequent, but more intense, and in the form of serious mental syndromes.

The appearance of these perturbations depend: *(a)* On a predisposing cause—degeneration *(b)* of an exciting cause: uncinariasis.

The pathogeny is explained by the intoxication and the exhaustion shown by ankylostomyasis. Anti-parasitic treatment may cause these mental perturbations to disappear.

Filariasis seems to me as an infestation capable of producing dysphrenia. I know of no description of such.

Grave somatic perturbations are observed in filariasis. According to Manson, the lesions which may be attributed to nocturnal filaria are: abscesses; lymphangitis; lymphadenitis; axillary adenitis; orchitis, etc. Of these troubles, several are febrile, infectious. There must be mental troubles with delirium of the

febrile or infectious type. There may even exist psychic perturbations specially depending upon filaria. This is a simple hypothesis, the verification of which will depend on future observation.

CYSTICERCOSIS.—The authors state that cerebral cysticerci may remain unobserved and quiescent, as in the case seen by Prof. Couto and myself; or they may provoke disorders of the type of *amentia,* at times awakening a state of depression, simulating the lypemania of the ancient writers, at others hysteria, followed or not by convulsions, giving the symptomatology of cerebral tumors. The cases seen at the hospital for the insane bore the diagnosis of alcoholism, hysteria, etc. Human cysticercosis was demonstrated at autopsy.

The pathogeny of the manifestations is toxic and not from compression, as it might seem at first sight.

CONCLUSIONS.

I. Infections cause psychoses, as is claimed by all authors.

II. Tropical diseases are not exceptions to the rule. The lack of published observations is responsible for the apparent absence of psychoses in tropical diseases.

III. Tropical infections or infestations present the same clinical features as other infections.

IV. The acute febrile infections, such as yellow fever, plague, malaria, etc., furnish types of febrile delirium, of infectious delirium, of post-infectious psychic weakness, of the delirium of collapse and amentia.

V. Infections with a chronic evolution, such as leprosy and sleeping sickness, rarely present mental troubles due to the initial infection.

VI. Intestinal and blood worms cause dysphrenia. Uncinariasis seems to me to be an element in the production of psychoses. Filariasis must be likewise.

VII. Sleeping sickness (trypanomyasis) produces psychic disturbances.

VIII. Beriberi should be considered as a syndrome, nearly always of chronic evolution. The psychic disturbances generally exhibit the Korsakoff type. *Latent and elementary mental perturbations* are frequent, according to my view.

IX. Cerebral cysticercosis determines psychic modifications similar to those of cerebral tumors. Its pathogeny is of toxic origin.

THE LATRODECTUS MACTANS AND THE GLIPTOCRANIUM GASTERACANTHOIDES IN THE DEPARTMENT OF AREQUIPA, PERU.*

By DR. E. ESCOMEL, Arequipa, Peru.
(Translated for the JOURNAL by Dr. A. McShane, Greenwood, Miss.)

Tradition has long preserved the memory of individuals injured, or even killed, by bites of poisonous animals, sometimes said to be spiders, sometimes scorpions, or occasionally a small saurian, the Phyllodactylus gerrophigus, popularly called the *salamanqueja,* to which a high degree of poisonous properties has been ascribed.

Frequently we hear of people having been made ill, or killed, by the bite of another spider, the *Gliptocranium gasteracanthoides,* commonly known as the "pruning-spider," because it hides on the under side of the vine-leaves, and bites the hand of the farmer while he is in the act of pruning in the vineyards of our valleys, particularly the valley of Majes.

In 1913, in the middle of that series of scientific studies which France furnishes us, giving them to us unreservedly even now, while struggling under the strain of a great war, we sent an entire nest of an arachnid which Dr. P. Lesne, of the Section of Entomology of the Museum of Natural History in Paris, characterized as probably the *Latrodectus mactans, Fabr,* which was subsequently confirmed.

Lately, we had the pleasure of sending to the eminent Argentine specialist, Dr. B. Houssay, a number of specimens, some living, some dead, of the *Araña podadora* (pruning-spider), which were identified by Dr. J. Carbonell, of Buenos Ayres, as the *Gliptocranium gasteracanthoides* of Nicolet.

The *lucacha,* a poisonous spider of Central Peru, studied by Dr. Leon, of Lima, has lately been identified by Dr. Cornelio Guzman, of Santiago de Chile, as the *Latrodectus formidabilis* of southern Peru.

LATRODECTUS MACTANS (Fig. 1 Page 539).

This arachnid is widely distributed over the globe. It is characterized in a special manner by the red spots which almost surround the anal orifice; and it is precisely this feature that has singularly attracted the attention of the majority of the countries in which

* Read by title before the American Society of Tropical Medicine, New York, June 5, 1917.

it is found, as is shown by the various names which have been given to it. Thus, the Malagassies call it *menabodi*—that is, "cul rouge" *(red rump);* the Santo Domingans call it by the same name, and the Chileans give a similar appellation to their Latrodectus.

It has been found in North and South America, Europe, Africa, Oceania and, as time advances, it is reported from still other localities.

In Argentine, Drs. Penna, Aguilar, Sommer, Greco, Houssay and some others have specially described this arachnid, and in all of its biological relations. In Chile, Puga Borne, Guzman, Bolilier, Cruzat, Crosi and others have fully studied the Latrodectus. Puga Borne established the similarity that exists between the *malmignata* of Italy, the *karakurt* of Russia, the *katipo* of New Zealand, the *menabodi* of Madagascar, the *cul rouge* of Santo Domingo, the *pallu* or *guina* of Chile, the *mico* of Bolivia, the *lucacha* of Peru (studied by Dr. Leon), the *araña naranja* (orange-spider) of the Antilles, and the *Latrodectus* of North America.

ZOOLOGICAL CHARACTERS.

The *Latrodectus mactans* belongs to the order of spiders, family Teridideæ, genus Latrodectus. The cephalothorax is oblong and oval, cephalic region narrow, the eyes on two equidistant parallel lines.

The species under consideration is of a deep black color, with vermillion-red spots on the abdomen. The cephalothorax measures from two and one-half to three millimetres from before backwards. There is a V-shaped groove in the part that surrounds the eyes, and another (transverse) groove in the posterior part. The lip is triangular and strong, the mandibles resting on the lip, which is ebony-colored. The abdomen is globular, ovoid, black, measures from seven to ten millimetres in length, and is characterized by the bright red spots which dot it.

On the back, and also on the anterior part of the abdomen, there are two linear or angular spots, separated by the median line. Behind the former we sometimes perceive the remains or traces of an oblique linear spot on the back of the abdomen, scarcely perceptible. Also, we see a large spot which, from being large in the middle of the dorsum of the abdomen, gradually narrows in size as it approaches the lateral surface of the abdomen. Further, there

is a small median, rhomboidal, or arrow-headed spot, which continues along the median line of the abdominal dorsum towards the margin of the anus. Along this path there is usually a slight widening, followed by a narrowing, and again a widening which ends abruptly at the anal margin.

On the inferior surface of the abdomen there is an hourglass-shaped spot, one or one and one-half millimetres long, narrowed by a constricting belt in the middle. It ends in a widened spot at the anal margin, inferiorly, so that the anal orifice is red only in its superior and inferior limiting parts. These spots assume various forms according to the degree of development of the arachnid. The legs are fine and black; those of the first pair measure approximately seventeen millimetres, and are the longest; those of the second pair are twelve millimetres long; the third are the shortest, measuring only nine millimetres, while the last pair are fifteen millimetres in length.

We have found the Latrodectus in the country districts of Arequipa as well as in the city, being less frequent in the latter. It prefers dry places, and feeds on insects, especially coleoptera.

Our studies of the Latrodectus have chiefly been carried on at Hunter Hill, in Tingo. In some places, where the ground is soft, this spider builds its nest in deep holes, concealing the entrance with webbing and network that deceive and catch the insects on which it feeds.

Ascending the hill, we begin to find the spider at a height of forty or fifty meters easily and in great numbers. Among the *pigmy cacti,* above the level where the *Encelia cannescens* and the *Licoporsicum peruvianum* thrive, the presence of the Latrodectus is revealed by a newly woven web with few meshes. In the neighborhood of this web the true nest of the Latrodectus is found among the rocks, and frequently under a rock. This nest is disclosed by an adhering group of the cadavers of insects, held together by the web, which serve as food to the spider. The spider is found close to his prey, or inside his web, and can easily be discovered, either through the vivid red color on an ebony background, or by his mobility, which is very great, enabling him to hunt his prey with great facility.

When the spider is grabbed with the forceps he defends himself by biting and expelling a greenish liquid from his mouth. At the same time, his anus expels another liquid, clearer than the first,

and of a bluish color. If it meet another Latrodectus in captivity it immediately begins a mortal combat. We have always found the Latrodectus solitary; the female is the one that survives, for, just as soon as she has been fertilized by the male, she attacks him and devours him, according to some writers.

In some nests of Latrodectus we have found from one to four pouches of ovules of the animal. There are numerous eggs in each pouch, varying in size from the head of a pin up, and of a pale, transparent violet color.

There are other species of Latrodectus that nest among the cacti, not covered by the rock, but well concealed by twigs which completely cover the group of cadavers of insects, leaving the web that serves as a door very fresh-looking and clear of them.

The insects most frequently found are coleoptera, and among these the *Tenebrionider* of the genus *Philorea:* the *P. setipennis,* and the *P. Escomeli* of Lesne, *the Pseudomdoe humeralis* less frequently; and some orthoptera, acridea, like the *Pachitylus migratorius,* but the most numerous victims are the *Philoreæ.*

As soon as one of these insects is caught in the web it is attacked by the Latrodectus, which, biting it between the head and the thorax, or between the thorax and the abdomen (because the thorax itself is very resistant), kills it in an instant and carries it to his hidden nest, where he wraps it or covers it with great care in order to add it to his reserve supply of food. He is distinguished from the *Latrodectus variegatus,* because the spots on the latter are not so red. The same applies to the *Latrodectus thoracicus,* which has a yellow cincture and polychrome abdominal spots.

THORACIC ACTION OF THE POISON.

The poison gives rise to general as well as local disturbances. Drs. Puga Borne and Guzman described these symptoms very minutely, which the eminent director of the National Bureau of Hygiene of Buenos Ayres, Dr. Penna, in 1894, compared to the grave accidents usually occasioned by yellow fever.

GENERAL SYMPTOMS.

Dr. Guzman writes as follows:

"The presence in the human organism of the poison of the Latrodectus, introduced by the insect itself into the circulatory system, produces a combination of serious disturbances of innervation, secretion and

heat-production. In an interval varying from a few minutes to two or three hours after the bite of the insect, the explosion of the symptoms of toxemia takes place.

"The individual who has been bitten a few moments before, many times without perceiving it, suddenly sees himself overcome by symptoms that upset him completely. Muscular strength rapidly diminishes, and mental depression quickly reduces the victim to inaction; a strange, violent pain invades all of his organs, and causes him to break out into groans and lamentations, without giving him a moment of relief. This pain is most intense in the brain, spinal cord and the muscles; the tremor sometimes develops into local convulsions; the suffering makes sleep impossible; the mind is clouded, and delirium sets in, with horrifying hallucinations which manifest themselves by incoherent complaints and an impulse to flee or to defend one's self against violence, which is difficult to control; the animal heat leaves the body, causing a fall in temperature of a degree (C.) or more; the heart beats at irregular intervals; an edematous swelling invades the entire skin, and distorts the countenance so that the individual is no longer recognizable; a cold, clammy sweat, which gathers in droplets and runs down, covers the entire body, principally the trunk; the urine is diminished or suppressed; the bladder ceases to function, and, in spite of great efforts, the patient is unable to urinate, and suffers the pain of retention. The cries of pain which are forced out of the patient dominate the scene. The symptoms moderate in a few hours, returning the same day and following days. In cases that terminate favorably, which are the only kind I have seen, each one of these exacerbations is less than the previous one, until they completely disappear; the pains cease, the sweating stops, and all the functions are restored, and the patient enters on a period of convalescence marked by extreme muscular and mental weakness, by difficulty in walking, by cutaneous eruptions (sudamina or morbilli), and by a great desquamation of the skin. The exceptional cases, in which death ends the scene, show a constant aggravation of the above symptoms; later, various paralyses occur, lowering of the temperature to a point incompatible with life, though sometimes, on the contrary, the temperature rises enormously. Death may occur, in other cases, even after the grave symptoms have disappeared, on account of the profound debility to which the organism has been reduced."

Dr. Perma says this:

"As my former pupil, Dr. Delio Aguilar, stated, I have taught in my lectures since 1894 my ideas concerning the pathologic action of the poison of certain arachnids. The Board of Public Benevolence sent to the Isolation Hospital, of which I was director, a patient diagnosed as 'suspicious' of yellow fever, in regard to which I was called on to give an official opinion to that institution, so that appropriate prophylactic measures could be instituted. The patient was a young Italian shoemaker, who had long resided in Buenos Ayres. He and another Italian occupied a wooden annex on the roof (azotea) of the building. His previous history was devoid of interest. His latest illness began brusquely in the following manner: A moment after having laid down to sleep one night he felt a pricking sensation at the level of the lower third of the left

thigh, and as soon as he got up to investigate he felt a similar sensation on the left side of the thorax, whence he drew forth with his fingers an insect, which proved to be one of the numerous spiders that infested his home. In consequence of this little accident a disease was ushered in, the details of which can be seen in my Clinical Lectures in the chapter on the Diagnosis of Yellow Fever, and which was principally characterized by hemoglobinuria, which developed in a few hours; fever, marked hematogenous jaundice, profound depression, anemia, rapid pulse, and, at the points of puncture, two spots of a peculiar ecchymotic aspect, slightly infiltrated, with small vesicles in the center, and presenting the paradoxical phenomena of an exaggerated spontaneous sensibility (which called for the use of morphin), associated with an anesthesia for pain, as shown by pin-pricks over the affected sites. The temperature was elevated; and, if my memory serve me aright, I believe it was towards the evening of the third day of the attack the fever declined, and the improvement of the patient was so evident that, being still dubious about the etiology furnished by the patient (but which was confirmed by Dr. Ricardo Lopez), I asked myself if this curious symptomatic defervescence were not really the period called the **improvement of death (mejoria de la muerte)**, which, in genuine yellow fever, usually precedes the fatal termination. Now, this patient was imbued, like many of the Italians, with the beliefs and superstitions of Apulia, where the people religiously preserve the tradition of the effects of the tarantula (spider); and when he reached this lucid interval in his attack he did not fail to speak of his profound terror of the spider that caused his disease. Such was the condition of the patient, whose organs showed nothing abnormal and of whom I had to express myself officially.

"If yellow fever were entirely lacking in the cutaneous manifestations above alluded to, and which reached a gangrenous stage, the slightly abnormal evolution of the symptoms would immediately have made me eliminate it from the diagnosis. But it so happens that in yellow fever, as in smallpox, carbuncle, plague, these circumscribed cutaneous manifestations, necrotic in character, may occur, which the French writers call **charbons**, true carbuncles which specialize most constantly and most frequently in the disease to which they have given a name (charbon). In spite of this, I was convinced that we really were dealing with a case of poisoning caused by the bite of a spider, and I reported accordingly.

"The patient became worse on the following day, and died a day or two after.

"The autopsy showed that the liver was healthy; the cystic duct was somewhat constricted; all the other organs were normal, except the kidneys, which were enlarged and congested, and in which the microscope revealed that the involuted tubules, as well as the glomeruli, were filled to a great extent with cylinders formed of altered red blood corpuscles molded into cylinders, such as we usually find in relapsing hemoglobinuria."

Dr. Houssay presented excellent works to the Medical Congress of Buenos Ayres in 1916, which have not yet been published.

LOCAL SYMPTOMS.

In Arequipa, Dr. Hunter has observed several cases of cutaneous phlegmons, with central gangrene and marked general symptoms,

which were ascribed to some kind of a bite, though the patient, usually from the country, did not know precisely what animal caused it. Inasmuch as these patients lived in regions infested with the Latrodectus, without any other poisonous animals, it is indisputable that this arachnid was the causative agent of the lesions, which agree very minutely with the cutaneous lesions described by Dr. Guzman in his monograph.

These cases comprise: (1) A woman who was bitten on the inner aspect of the thigh, and who, after suffering with general symptoms for several hours, developed a phlegmon which ended in an immense sphacelus, even exposing the muscles, and cicatrizing very slowly. (2) A man who was bitten in the axillary region, suffered from local hyperalgia, somnolence and fever, phlogosis ending also in deep sphacelus exposing the muscles, and cicatrization very slowly.

First Personal Case.—The writer himself has seen a boy of fourteen, who was bitten by a black spider, with red spots (this is the only arachnid with these characters described in country districts of Arequipa), which was no other than the *Latrodectus mactans.* The boy was bitten in the submental region of the neck.

The patient felt a stinging pain in the place mentioned, while reclining in the fields. He caught the spider and killed it, and examined it leisurely afterwards.

Ammonia was applied locally, and ammoniated drinks were administered.

The general symptoms of arachnidism were very marked; but in twenty-four hours he was able to go out, though presenting an enormous edema of the neck, which threatened to extend to the thorax.

At the site of inoculation there were two small, dark spots, corresponding to the two fangs that led to the poison-glands of the spider.

The boy's face was directed upwards; deglutition was somewhat difficult; the voice was husky, the general state depressed, and the urine was strongly hemoglobinuric.

I prescribed local applications every two hours to the edematous zone with a saturated aqueous solution of permanganate of potash; after the solution had dried, the surface was covered with ouatoplasm of Langlebert. Internally, I ordered a teaspoonful of a

solution of permanganate (1 to 4,000) every three hours. Milk diet.

At the end of three days the patient was greatly improved; no sphacelation occurred.

Second Personal Case.—Recently, a child of eight years was brought to me with the left foot and leg in a state of enormous phlogosis. The swelling was so extreme that the foot was held in complete extension, with the toes in abduction, because their respective bases spread out.

In the anterior part of the tibio-tarsal articulation small spots were observed, symptomatic of the spider-bite.

The edema extended above the knee. The general symptoms were very grave: somnolence and profound weakness. Temperature, 39.5° Cent.; general and local painful hyperexcitability; absolute anorexia; polydypsia; scanty urine (none was brought for analysis).

Painting every two hours with a saturated solution of permanganate of potash over the swollen foot and leg, and for one centimeter beyond the edematous region, and a potion of permanganate (1 to 4,000) in teaspoonful doses every two hours. Under this treatment the child recovered in three days; there remained only a little edema, which entirely disappeared in two days more under the application of the permanganate solution three times a day, *without giving rise to the escharotic formation so frequently observed in the bites of the Latrodectus.*

Third Personal Case.—Servant, 19 years of age, from a region abounding in Latrodecti, between Tingo and Tingo Grande.

She consulted me two days after edema began in her right hand, extending rapidly to the elbows. She did not remember having suffered from the bite of any insect; nevertheless, we saw very plainly the points at which she had been inoculated.

The general symptoms of arachnidism were fairly well marked. As in the other cases, the face was swollen, the gaze was vacant, walking was tremulous, the adynamia profound. The hand and forearm had all the signs of serious, diffuse, deep phlegmon. The urine was high-colored.

Notwithstanding the long time that had elapsed since the beginning of the phlegmon, the usual topical applications of a saturated solution of permanganate were made; internally, collargol and diffusible stimulants were given, with a rigorous milk diet.

We had the pleasure of seeing the phlegmonous symptoms

gradually fade, so that in a few days she could move her hand freely. All the local and general lesions disappeared without having caused any gangrenous symptoms like those in previous cases. I saw the patient from time to time, until the manual functions were completely restored.

These are the three cases that came under my personal observation, and which, by the multiple and symmetrical punctures, can not be confused with those caused by other insects provided with a lancet-shaped proboscis, like the hymenoptera or the scorpion, which thrives sometimes in the fields.

It is not necessary to speak here of the Phyllodactylus, the bite of which leaves very different traces; nor of the vipers, which do not exist in the rural districts of Arequipa.

Treatment.

A supersaturated aqueous solution of permanganate of potash is the remedy to which we owe very valuable services in all of our cases. Not only has it served to combat the bites of poisonous animals, but also in all of the bacterial invasions of the skin, in chronic intrauterine lesions, and in the indurations that follow hypodermic injections.

Its deep, penetrating action through the skin, although not widely known, is notable, being superior to that of iodin.

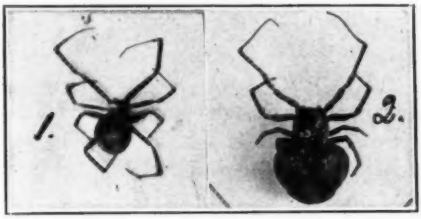
Its oxidizing, antiptomainic, antiseptic power is ample and harmless. I recommend it enthusiastically, for its employment, simple and easy everywhere, can render invaluable services.

I have used it in erysipelas or active febrile microbian dermatitis topically every two hours, in saturated solution, decreasing the applications as the patient improved. Internally, the permanganate was given in a weak solution (1 to 4,000), in doses of one tablespoonful every two hours. Usually, an exclusive milk diet was given, and diuretics for the elimination of the toxic material, with ammoniacal stimulants and tonics in cases of profound adynamia.

Having called attention to these facts, I believe that the verification of the lesions caused by the bites of the Latrodectus will become more frequent in Arequipa, since I feel sure that some of the edematous, febrile and gangrenous lesions found among the country folk will be traced to the poison of the arachnid rather than to a bacterial inoculation.

THE GLIPTOCRANIUM GASTERACANTHOIDES OR PRUNING SPIDER. (Figure 2.)

This arachnid, known for a long time in our vine-clad valleys under the name of *pruning spider,* because it makes its effects felt in a particular manner at pruning-time, has been traditionally de-



1. Latrodectus Formidabilis.
2. Gliptocranium Gasteracanthoides.

scribed by the vineyardists on account of its bite, which occasionally caused the death of the individual bitten.

The earthy color of the arachnid, and the construction of its webs on the under side of the leaves, make it particularly dangerous, not so much on account of its agility, which is not very great, being sluggish, rather, as on account of the circumstance that the hand of the pruner, being under the leaf, might press it and cause it to bite and inoculate the workman.

When the spider is on the ground, under the fallen leaves, it is accustomed to bite the bare foot of the farmer when it comes within reach.

So great is the terror inspired by this spider that a husbandman, feeling that he had been bitten on a finger by the animal, immediately cut off the finger entirely, and that, too, with the same scissors he had used in pruning.

Various writers have described parasites in different vine-growing valleys of Arequipa (Vitor, Majes, Siguda, Camana, etc.), but they are most frequent in Majes. I wish here to express my thanks to Señores Belaunde and Romaña, who sent me a number of specimens; also to Dr. Bedregal Delgado, who, besides sending me specimens, also furnished the clinical data which I offer in this paper, since it is extremely rare for any patients bittten by the Gliptocranium to come to Arequipa for treatment.

Zoological Study.

The cephalothorax, coriaceous, hard, trapezoidal, literally covered with black tubercles, visible under a low power, the apices of which are of a clear yellow color. The anterior part, which holds the eyes, is narrower than the posterior. It measures three or four millimeters in length. The eyes are above the tubercles; the legs are black and spotted: the first pair is very long, next in length is the second pair; the fourth pair is the longest, and the third pair the shortest.

The abdomen is enormous, globular, measuring ten millimeters in length, twelve millimeters wide, and seven high. It has small hairs in its anterior part, is smoother posteriorly than on the belly. Its color is ashy-grey in the adult state, whereas it is yellowish in early life. It has an anterior-posterior ridge, and at the junction of the anterior fourth with the posterior three-fourths in the most prominent zone two obtuse tubercles arise, separated from each other by a space of five or six millimeters. Each tubercle is rounded at its vertex, is two millimeters long, and is directed forward and upward. It is of the same ashy-grey color as the abdomen.

Symptomatology.

The symptoms of arachnidism presented by victims of the bite of the Gliptocranium are similar to those produced by the Latrodectus, only they are more intense. The effects are general and local.

The local symptoms begin as a reddish papule shortly after the bite, rapidly invading the skin, the subcutaneous cellular tissue, and the neighboring organs. In twenty-four hours the lesion assumes the typical aspect of a diffuse phlegmon; in forty-eight or fifty hours sphacelation begins, and may become very extensive, as in a case treated by Dr. Bedregal, in which a small child, bitten by the spider in the anterior region of the neck, presented, at the end of seven days, the muscles exposed to view, after the separation of a mortified cellular cutaneous mass. This patient died nine days after having been bitten.

The general symptoms are marked by a nervous stupor, which begins as soon as the patients see themselves bitten by the animal; later there is nervous exhaustion, local pain, general depression,

very high fever, rapid pulse, rapid breathing, and a *hematuria.* This last symptom is the one that most forcibly arrests the attention of the patient, and is the one which they most frequently relate.

In some individuals these general symptoms become aggravated so rapidly that in a few hours coma sets in, ending in death. This termination, however, is the exception and not the rule; still, a sufficient number of fatal cases have been recorded to make this arachnid an animal traditionally feared in our valleys.

TREATMENT.

Since physicians are few in number in the valleys mentioned, we are forced to content ourselves with instructing the planters *(haciendados)* in the therapeutic technic that they should follow in the case of a bite of the Gliptocranium. We recommend the employment of permanganate of potash internally and externally, as in Lactrodectus poisoning. This can be readily applied by the peons themselves, since they can carry some permanganate with them and make a solution with any accessible water, since it is not necessary to have sterile water, for the permanganate sterilizes any water in which it is dissolved.

It is also recommended to suck the poison out of the wound with the mouth, when the bitten place is accessible, to use dry-cupping, or scarifications in the region when it is possible to do so; and the application of a ligature (or bandage) above the bite to prevent generalization of the poison by the blood-stream.

Internally, diffusible stimulants and tonics, such as quinin, kalo, caffeine, should be used, and a strict milk diet should be followed; also, diuretics. Adrenalin and chlorid of calcium might be used as hemostatics in hematuria when the hemorrhages are profuse. This treatment has given good results on the haciendas where it has been employed. Dr. Bedragel, during his brief residence in Majes Valley, treated six patients. One of these was the child already mentioned, that died in nine days, and five cases in adults, who presented themselves with clearly marked characteristics of arachnidism, which were treated by sucking the wound or by dry-cupping; locally, swabbing with tincture of iodin (15 per cent), and applications of Langlebert's autoplasm, soaked with a 10 per cent aqueous solution of chlorid of lime. Internally, a saline purgative was administered, followed by acetate of ammonia and benzoate of soda. All five of these patients recovered in a few days.

The foregoing remarks open the way to new problems and new improvements, particularly in the elaboration of new serums, on the order of Calmette's for snake-bites, since there are many patients in our towns and valleys who should be treated promptly and adequately in order to prevent sphacelation and subsequent cicatricial mutilation, saving them from weary months of illness, if not even saving the lives of the victims. The prompt use of a suitable serum should all the more be encouraged, since, in our sparsely populated country, the day-laborers represent energies that should always be preserved when possible.

Apart from the thesis of Dr. Leon on Lucacha, I know of no work that, up to the present time, has dealt with the subject in a scientifically concrete form.

Conclusions.

1. The *Latrodectus mactans* and the *Gliptocranium gasteracanthoides* are two dangerous arachnids that exist in southern Peru.

2. Their bite has caused cases of arachnidism with local and general symptoms, resulting sometimes in death.

3. The treatment with permanganate of potash, internally and externally, is the one that has given the best results.

4. The popularization of the study of these and other poisonous spiders of the country should be encouraged, so as to destroy them and head off their bites, and also to hasten the day when a curative serum of proved efficacy shall be elaborated.

MEDICAL SECTION, LOUISIANA STATE COMMITTEE OF NATIONAL DEFENSE.

(P. O. Box 778, New Orleans, La).

BULLETIN III.

"To the Judge of Right and Wrong
With Whom fulfilment lies
Our purpose and our power belong
Our faith and sacrifice."

—Kipling.

The last utterance of an official nature referring to Medical Reserve Corps stated that ten medical officers will be needed for every thousand men. Already nearly a million and a half men are under arms and there are about seventeen thousand medical officers with commissions, including the regular Medical Corps, the Medical Reserve Corps and the National Guard.

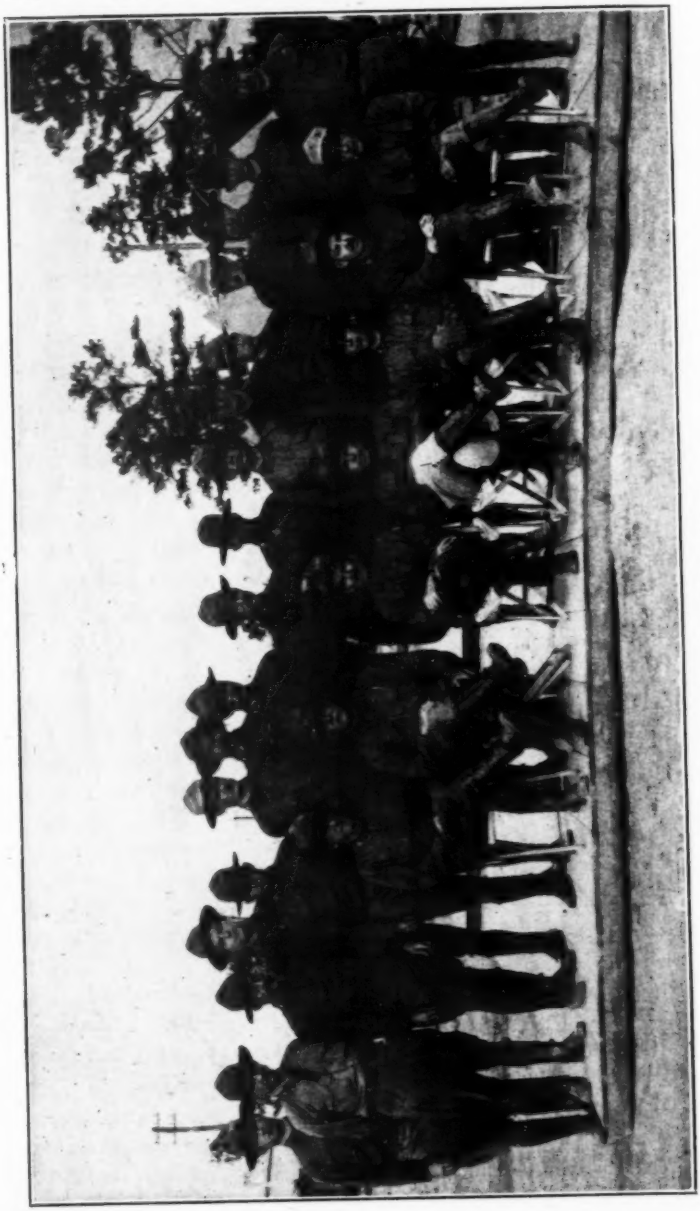
The outlook is clear for many more troops and in another six months there should be another army of a million and a half men under way and for that army fifteen thousand medical officers will be needed. *And after that?* WHEN WILL YOU BE READY?

The time is at hand when the medical profession will be mobilized and every man who is physically able will be detailed for military duty—but *before that time comes every able bodied* man who is *now free, should volunteer* in order that he may help to make that mobilization effective. There are *over* 2000 physicians in Louisiana. As yet *less than* 12 per cent. have volunteered for military service.

This Committee has been instructed by the Council of National Defense to carefully sift the state for the men who ought to be in the Medical Reserve Corps of their own free will.

Men of *draft age* who are holding back, *unless otherwise exempted,* will be sent to the camps when they are called and ordered and there will be no chance for the Reserve Corps until they have qualified in camp as soldiers.

There should be at least 160 more men of Louisiana in the Medical Reserve Corps and it ought not to be necessary to get out a search for them. While men up to 55 *may* join, men *under* 40



THE TULANE UNIT.
Red Cross Base Hospital No. 24 at Fort Oglethorpe.

are *wanted;* men over 40 will be called upon for other service later on—if they have no call now.

Every man *who can* should join the Medical Reserve Corps now. The time has passed for deliberation. You are *needed*—Now!

It will be necessary to train every man who goes into active service and this takes three months!

Information and *all forms may be had* by addressing the Medical Reserve Corps Examining Board, 1551 Canal Street, New Orleans, Louisiana.

Medical Personnel of The Louisiana National Guard.

State of Louisiana, Adjutant General's Office,
Baton Rouge, October 27, 1917.

From: The Adjutant General of Louisiana.

To: Chairman, Medical Section, Louisiana Committee of National Defense, New Orleans, Louisiana.

Subject: Medical Officers of the Louisiana National Guard.

Replying to your letter of October 25, 1917, you are advised that the following named medical officers form the personnel of the Medical Department of the National Guard of this State, all of whom are in the Federal service:

Medical Department.
(Medical Corps).

Name.	Rank.	Station.
Devron, John A.,	Major,	Camp Beauregard, La.
Pothier, Oliver L.,	Major,	Camp Beauregard, La.
Cole, Herbert C.,	Major,	Camp Beauregard, La.
Rutledge, William S.,	Major,	Camp Beauregard, La.
Sentell, Newton W.,	1st Lieutenant,	Camp Beauregard, La.
Nicolle, Henry T.,	1st Lieutenant,	Camp Beauregard, La.
Smith, Glenn J.,	1st Lieutenant,	Camp Beauregard, La.
McHenry, Armand G.,	1st Lieutenant,	Camp Beauregard, La.
McHugh, Thomas J.,	1st Lieutenant,	Camp Beauregard, La.
Adiger, David,	1st Lieutenant,	Camp Beauregard, La.
Bodet, Roy Elmer,	1st Lieutenant,	Camp Beauregard, La.

Medical Department.
(Dental Corps).

Hava, Walter C.,	1st Lieutenant,	Camp Beauregard, La.
Swords, Collins Ward,	1st Lieutenant,	Camp Beauregard, La.
House, Charles Gould	1st Lieutenant,	Camp Beauregard, La.

Medical Department.
(Veterinary Corps).

Robertson, Earl Wilson,	2nd Lieutenant,	Camp Beauregard, La.
Ratigan, William J.,	2nd Lieutenant,	Camp Beauregard, La.

(Signed) CECIL C. McCRORY.

1st Lieutenants Ernest E. Allgeyer and Frederick K. Fenno have reported for duty with the Louisiana National Guard in Camp Beauregard.

Major John A. Devron is now the ranking Medical officer of the Louisiana National Guard, and therefore member of the Medical Section. Major Devron's name should appear in place of Major Pothier, as published in Bulletin II.

Chairmen of Parish Auxiliary Medical Defense Committees of Louisiana.
(Revised List.)

Acadia—Dr. E. M. Ellis, Crowley.
Allen—Dr. C. Lewis Gaulden, Elizabeth.
Ascension—Dr. T. H. Hanson, Donaldsonville.
Assumption—Dr. W. E. Kittredge, Napoleonville.
Avoyelles—Dr. T. A. Roy, Mansura.
Beauregard—Dr. J. C. Miller, Bon Ami.
Bienville—Dr. J. M. Moseley, Arcadia.
Bossier—Dr. D. J. McAnn, Atkins.
Caddo—Dr. J. C. Willis, Shreveport.
Caldwell—Dr. I. B. May, Columbia.
Catahoula—Dr. E. R. Yancey, Jonesville.
Claiborne—Dr. C. C. Craighead, Athens.
De Soto—Dr. S. D. Kearney, Pelican.
East Baton Rouge—Dr. Chas. McVea, Baton Rouge.
East Carroll, Dr. W. H. Hamley, Lake Providence.
East Feliciana—Dr. E. M. Toler, Clinton.
Franklin—Dr. A. J. Reynolds, Ft. Necessity.
Grant—Dr. E. B. Gray, Colfax.
Iberia—Dr. G. J. Sabatier, New Iberia.
Iberville—Dr. G. A. Darcantel, White Castle.
Jackson—Dr. A. E. Simonton, Jonesboro.
Jefferson—Dr. G. F. Gelbke, Gretna.
Jefferson Davis—Dr. N. S. Craig, Jennings.
Lafourche—Dr. Chas. J. Barker, Thibodaux.
Livingston—Dr. J. M. Ehlert, Springfield.
Lincoln—Dr. A. E. Fisher, Choudrant.
Morehouse—Dr. O. M. Patterson, Bastrop.
Natchitoches—Dr. Jos. Bath, Natchitoches.
Orleans—Dr. George F. Cocker, New Orleans.
Ouachita—Dr. O. W. Cosby, Monroe.
Plaquemines—Dr. H. L. Ballowe, Buras.
Pointe Coupe—Dr. R. M. G. Carruth, New Roads.
Rapids—Dr. R. O. Simmons, Alexandria.
Red River—Dr. C. E. Edgerton, Coushatta.
Richland—Dr. H. C. Chambers, Girard.
Sabine—Dr. J. M. Middleton, Many.
St. Charles—Dr. R. H. Johnson, Moberly.
St. John—Dr. S. Montegut, Laplace.

St. Helena—Dr. A. J. Newman, Montpelier.
St. Landry—Dr. Joe Saizan, Opelousas.
St. Martin—Dr. P. H. Fleming, St. Martinville.
St. Mary—Dr. L. B. Crawford, Patterson.
St. Tammany—Dr. W. E. Van Zant, Mandeville.
Tangipahoa—Dr. E. L. McGehee, Hammond.
Tensas—Dr. J. Whitaker, St. Joseph.
Terrebonne—Dr. L. J. Menville, Houma.
Union—Dr. R. L. Love, Farmerville.
Vermilion—Dr. C. J. Edwards, Abbeville.
Washington—Dr. E. E. Lafferty, Bogalusa.
Webster—Dr. R. C. Tompkins, Minden.
West Baton Rouge—Dr. F. H. Carruth, Lobdell.
West Carroll—Dr. C. W. Smith, Oak Grove.

PLEASE SEND YOUR DOLLAR.

Intensive Instruction in the Treatment of Fractures, for Officers of the Medical Reserve Corps of the Army.

Because of the large number of serious complicated fractures—fractures comprise more than 25 per cent of all casualties occurring in the war, which will require special methods of treatment in order to obtain ideal results, the Surgeon General approved the plan of a special fracture hospital located as far forward on the line of communication as possible, the unit to obtain 1000 beds. Captain J. B. Walker, the distinguished New York surgeon, has been assigned as surgeon in chief of the special fracture hospital.

In this special center, the most serious cases will be treated as well as possible by especially skilled surgeons, and they will be utilized as presenting an ideal towards which all should work.

The formation of this unit, devoted to the special surgery and treatment of fractures, has been justified by the notable advances achieved in the treatment of fractures in similar special units organized and conducted during the past two years with the armies of France. For several years this type of specialized and expert work has been at the disposal of the surgery in civil life. For the first time in history, it has become an integral part of the practice of military surgery.

It is conceded by all cognizant of the situation, that there are comparatively few men, working in general surgery, who are familiar with the various mechanical means which have been developed during the war, and which have produced such excellent results with serious fractures.

For those members of the Medical Reserve Corps who have had only a general surgical training, and who may be assigned to the fracture service of the army, courses of intensive instruction in the treatment of fractures have been approved; are of four weeks duration and have been inaugurated in various cities where there are satisfactory clinical facilities. It is desired to standardize the treatment of complicated gunshot fractures by instructing medical officers in the use of typical forms of stock splints for various fractures, so that when these officers return to their various cantonments, they can, in time, instruct those who have not had the opportunity of receiving this special course of instruction.

By order of the Surgeon General, and through the courtesy of the administrators of the Charity Hospital, Touro Infirmary, and the School of Medicine of Tulane University, such a course was inaugurated at the Charity Hospital on Monday, November 5, under the direction of Dr. Rudolph Matas, Major, M. R. C., who, assisted by an able staff of instructors, is utilizing the large clinical and laboratory opportunities offered by these institutions, in carrying out the Surgeon General's program in all its details.

The course was opened by preliminary exercises and clinics at the Miles Amphitheatre, with the following officers in attendance.

Major James G. Goodwin, M. R. C., Camp Gordon, Ga.; Captain Daniel B. Cliffe, M. R. C., Camp Geenleaf, Fort Orglethorpe, Ga.; Captain Stillwell C. Burns, M. R. C., Fort Wordsworth, N. C.; Captain H. B. Kuhn, M. R. C.; Base Hospital No. 2, Fort Bliss, Tex.; Lieutenant L. J. Arnold, M. R. C., Camp Greenleaf, Fort Orglethorpe, Ga.; Lieutenant W. R. Barton, M. R. C., Camp Logan, Houston, Tex.; Lieutenant J. C. Cook, M. R. C., Camp Wheeler, Ga.; Lieutenant James G. Murfin, M. R. C., Camp Greenleaf, Fort Oglethorpe, Ga.

PLEASE SEND YOUR DOLLAR.

Commissions Declined.

Drs. Edmond Souchon, Marion Souchon, H. B. Gessner, E. L. King, R. M. Blakely, of New Orleans, have notified the Medical Section that they have not accepted commissions in the Medical Reserve Corps. Their names, therefore, should be removed from the list published in the last Bulletin.

A like notice should be sent by all who have declined commissions.

A list of all Louisiana men recommended for commissions is being revised for publication in the next bulletin. The names of all those who are *holding commissions without action* will be printed so that they may be influenced to act one way or the other, as it is unfair to those who are enlisted to delay action. Moreover such delay may be misinterpreted as it is known that not a few men are advertising the fact that they have commissions, when the truth is they have never taken oath of office.

Shreveport Acts.

By a resolution passed by the Shreveport Medical Society, the practice of doctors who are called to war is being done by members of the Society who remain at home. One-third of all medical and one-half of all surgical fees collected is to be turned over to the Secretary of the Society for transmission to the family of the doctor for whom the practice is done.

Causes for Rejection.

The loss of vision in one eye is disqualifying under existing regulations in all candidates for commission or enlistment in any branch of the service.

A simple congenital hydrocele which in no way impairs the applicant's marching ability is not considered a cause of rejection for appointment in the Medical Reserve Corps. A large hydrocele is a cause of rejection.

The department is following the general rule of rejecting applicants below 45 years of age who are dependent upon dental plates. For applicants over 45 years of age, this is not a cause of rejection if the applicant is otherwise in first-class physical condition. The reason for making the difference according to age is that officers under 45 years of age may be on duty under such conditions that they will have to subsist on field rations, and an accident to their dental plates might result in their inability to continue on active duty with troops.

PLEASE SEND YOUR DOLLAR.

Over 69,000 Men Enlisted in Army Medical Service.

The Medical Department of the Army now has an enlisted personnel of over 69,000 men, compared with 6,600 just before the outbreak of the war. Nearly 13,000 officers had accepted commissions in the Medical Reserve Corps up to October 1; the Dental Reserve Corps now has over 2,600 commissioned officers and the Sanitary Corps about 240,

In organizing for war work the Surgeon General's office has added sections on internal medicine; medical officers' training camps; medical military instruction; psychology; neurology and psychiatry; surgery; infectious diseases and laboratories; head, eye, ear, mouth and brain; military orthopedics; special hospitals and physical reconstruction; gas defense; food; office development and filing system.

The Surgeon General's office now has over 500 clerks and messengers and more than 100 officers, compared with 140 clerks and messengers and 10 officers which made up its personnel in March, 1917. On October 1 the Regular Nurse Corps numbered over 300 members, with about 1,600 members in the Reserve Nurse Corps, as compared with 230 in the regular corps and 227 in the reserve corps in March, 1917.—*Official Bulletin.*

On Duty at Camp Beauregard.

During October and a part of November, a Board of Examiners for Tuberculosis was on duty at Camp Beauregard. Major Whyte Glendower Owen, M. R. C. was president of the Board, with Drs. L. O. Clark, of Lake Charles, Leon J. Menville, of Houma, Thos. E. Wright and R. W. O'Donnell, of Monroe, Wallace J. Durel, P. L. Querens, E. L. Levin, A. E. Fossier, of New Orleans, as the other members.

Aviation Corps Examiners.

Drs. R. C. Lynch and Edmond Moss, of New Orleans have been appointed the medical members of the Examining Board at New Orleans for the Aviation Corps.

PLEASE SEND YOUR DOLLAR! WE NEED IT.

Previously acknowledged. . . . . $ 16.00
Received since. 28.00

From Drs.

C. M. Horton, Franklin.	M. C. Brown, Alexandria.
R. M. Van Wart, New Orleans.	H. C. Milburn, Ville Platte.
Oscar Dowling, Shreveport.	J. T. Bringier, Burnside.
J. L. Scales, Shreveport.	C. J. Barker, Thibodaux.
F. J. Kearney, Plaquemine.	U. J. Arreteig, Duson.
F. H. Carruth, Lobdell.	E. A. Hogan, New Orleans.
H. S. Joseph, Melville.	E. Lafleur, Opelousas.
W. F. Carstens, New Iberia.	E. L. King, New Orleans.
E. Dreifus, New Orleans.	T. H. Hanson, Donaldsonville.
H. B. Gessner, New Orleans.	C. W. Kibbe, Abbeville.
W. P. Yerger, Mound.	T. J. Harrison, Montgomery.
A. E. Fisher, Choudrant.	H. J. Otto, New Orleans.
B. A. Littell, Opelousas.	F. A. Larue, New Orleans.
S. D. Kearney, Pelican.	J. E. Brierre, New Orleans.

Total received to date. . . . . $ 44.00

All funds to *Medical Section, Louisiana State Committee of National Defense.* P. O. Box 778. New Orleans.

Acting under instruction of the Council of National Defense at Washington, a ballot for a *vice* Chairman and for an *Assistant* Secretary of the Medical Section was mailed to all members of the Section, resulting in the unanimous election of

Dr. Oscar Dowling, vice-Chairman.

Dr. E. L. Leckert, assistant-Secretary.

Medical Section Louisiana State Committee of National Defense.

Executive Committee:

Dr. Isadore Dyer, Chairman.

Dr. Oscar Dowling, vice-Chairman.

Dr. L. R. DeBuys, Secretary.

Dr. E. L. Leckert, Assistant-Secretary.

Dr. C. J. Miller, Dr. S. W. Stafford, Dr. Chas McVea.

The full membership of the Medical Section will be published in a later Bulletin and as soon as the personnel can be completed.

Please address all official communications to the Chairman, Medical Section, P. O. 778, New Orleans, La.

WHEN THE FLEET GOES OUT TO SEA.

The laughter of golden morning is stilled by a summer haze.
The tide's asleep at the flood-mark, a-hush are the harbor ways,
A-hush with the expectation that the waiting thousands feel
For sight of the mighty pageant of a people's prayer in steel.
There's smoke at the mouthing funnels where a moment since was none,
And mounting high to the veiled sky the brilliant signals run.
Far over the glassy river the bugle-notes ring free,
And the black mud stains round the anchor chains, for the fleet goes out to sea.

A prayer, and for Peace? Aye truly, an orison winged with fire,
To break with the voice of thunder on the music of Heaven's choir.
Though Peace be the prayer of mothers since the sword-scarred world began
The word that's blown to the Mercy-Throne is the prayer of a fighting man.
They've swung the bells to the fore-tops, they're dressing the ships below,
A-peak is the lordly ensign, they're slipping the leash to go,
And the smoke is a cloud of wonder and battailous majesty
For the wreathing vast of each fighting-mast as the fleet goes out to sea.

"Have Faith," it is writ, "but labor that the Works of your Faith be done."
For Peace is a swift-winged swallow that nests in a shotted gun,
And when from the war-wild Winter she flies to a warmer wold
She bideth but where men labor to fend for the Winter's cold.
At last, now at last they're moving so slow that we hardly knew,
And the waters curl and tremble to the first throbs of the screw,
And the bands crash out with a war-song of your fathers strong and free
And a flag they bore in the hot heart's core, when their fleet went out to sea.

See how on the flanks extended, as swift as the ripples burn,
Go snaking the lean destroyers with never a trail astern,
And out from the piers come swimming to join in the seaward race
The turtles—the strange sea-divers—a head and a carapace.
Now the flags and the pennants blossom from the league-long crowds ashore,
And the roar of the cheering faintly comes back in a distant roar,
For the stars of the dark-blue banner have girded them mightly
To tear the rack in a comet-track, as the fleet goes out to sea.

Now faster they speed and faster, the foam from the forefoot flies,
A line like the wild geese driving through dusk of December skies.
Each one with her cloud outvying the belch of the cloudy van,
And spaced to a measured fathom—God—look at it while ye can
Each towered sea-fortress sweeping as light as a shallop runs,
And spiked out of flank and turret guns—over all the guns
Oh, where is the man so prostrate—if e'er such a thing could be—
But the sight would tole at his inmost soul when the fleet goes out to sea?

They're past—like a floating city they show to the misty sun,
The towers and the glancing ancients in a smoke of gold and dun.
They're gone—and the rolling river is empty and void and vain.
O, ye that bear sword in Heaven, whose foreheads are pure from stain.
And ye that were crowned for valor below in the earthly dark,
Saints Uriel, George and Michael, and the mail-clad Joan of Arc,
Draw near in the looming storm-cloud, when the war-winds burst and flee,
And guard them all from the bolts that fall, for the fleet's gone out to sea!

—E. SUTTON.—**Army and Navy Register,** Sept. 4, 1917.

BULLETIN OF THE LOUISIANA STATE MEDICAL SOCIETY

Edited by DR. L. R. DE BUYS, Secretary-Treasurer.

One Thousand Membership.

Hurrah! The goal to which the Society has been striving for the past three years has been reached! It is with profound pleasure that the announcement can be made that our membership is now *One Thousand* which is the greatest in the history of the Louisiana State Medical Society, and an increase of more than thirty-three and one third (33 1/3%) per cent. over the membership of three years ago. When last computed by this office 54% was the maximum membership of any of the societies in the United States. At present our Society has a membership of 66 2/3% of the eligible physicians in the State.

Men in Service Appreciate Membership.

It is indeed gratifying to know that our members in service do not want to sever their ties with their State Society and organized medicine. A short time ago a circular letter was sent from this office to each member of the Louisiana State Medical Society in service with the request that he specify whether he did or did not wish to continue his membership during his period of service. It was with quite a little difficulty that these letters reached their destination. They were sent care of the Surgeon General's office at Washington, but were returned as that office could not forward them. The letters were then sent to the old addresses with the "Please forward" mark on them. Only a few of these letters have miscarried as indicated by being returned to this office. In all

the replies our members with only one exception have signified their desire to continue membership during their period of service and one has stated that he wishes his journal to be forwarded to him regularly assuring this office that he will furnish his changes in address.

This appreciation on the part of our members is indeed a stimulus to our energies to continue the policy inaugurated of offering as much as is possible to our members.

Advice to Members.

You know you are going to continue your membership in the State Society during 1918.

You know that the Society is offering with its membership, besides many other advantageous, Medical Defense and subscription to the Journal.

You know your protection by Medical Defense begins on the date your dues are received at the office of the State Society and during the period from the first of the year to the date your dues are received you are unprotected.

You know that if your dues are received after the first of the year the Journal for 1918 will be sent you beginning with the issue of the first following month.

Why not then submit your dues for 1918 at once before you forget or at least in time for them to be received at the office of the State Society on or before January 1st, 1918, so that there will be no lapse in your benefits and the files of your Journal will not be broken but will be complete for future reference. Do it now!

Advice to Component Societies.

You know that in organized parishes the dues from members to the State Society must be sent through the parish society.

You know the responsibility of selecting active officers for the success of your Society.

You know the advantages of having all eligible physicians in your parish as members.

You know that the larger your membership the greater representation you have in the voice of organized medicine in the State.

You know that your meeting for the election of officers and delegates should be held sometime before the end of the year to serve during the ensuing year.

You know that a member in a parish which has been organized may protect his interests should his parish become delinquent by submitting his dues direct to the State Society.

Why not then meet, elect officers, and delegates at once, submit your report along with the dues of your members to the office of the State Society so that your duty toward your members will be performed and their interest conserved. *Do it now.*

NEWS AND COMMENT

To Officers of the Medical Reserve Corps, U. S. Army Inactive List.—Information has been received from the Surgeon-General of the U. S. Army that assignment to active duty may be delayed. These officers are advised to continue their civilian activities pending receipt of orders, and they will be given 15 days' notice when services are required.

Journals Merge.—The Medical Review of Reviews has purchased *Pediatrics* a monthly journal devoted to diseases of children, and will open a department of pediatrics in its journal. *Pediatrics* will no longer appear as a separate publication.

Unit of Women Doctors for France.—The Woman's Hospital of New York has organized and equipped a unit of ten women doctors for service in a base hospital in France. The unit will leave for France in the near future.

Clinical Congress Devoted to War Sessions.—The eighth annual convention of the Clinical Congress of Surgeons of North America, held in Chicago the latter part of October, was a war session. The clinics were largely devoted to demonstrations of war methods, of the new antiseptics, of the new treatment for war burns and of the handling of cases of shock. There was great applause when it was announced during one of the sessions that 18,000 physicians had offered their services, without conscription, to the government, and that special conscription of the medical profession would not be needed.

National Board Examination.—The third examination of the National Board of Medical Examiners was held in Chicago, October 10-18. Of the twenty-eight candidates examined, twenty-

two passed. The next examination will take place at Bellevue Hospital, New York City, January 9-17, 1918.

American Public Health Association Elected Officers at its forty-fifth annual meeting held in Washington, D. C., October 17-20, under the presidency of Dr. William A. Evans, as follows: president, Dr. C. O. Hastings, Toronto; vice-presidents, Drs. Geo. M. Kober, Washington, D. C., Emanuel S. Iglesias, Vera Cruz, Mexico, and Guilford H. Summer, Des Moines, Iowa; secretary, A. W. Hedrich, Boston; treasurer, Lee K. Frankel, New York. A resolution was adopted by the association favoring the bestowal of the Nobel Prize on Major-General Wm. C. Gorgas, Surgeon-General, U. S. Army, for placing yellow fever in the list of preventable diseases.

New York Hospitals Show Big Deficit.—Among the hospitals of New York reporting deficits for the year ending September 30 are the New York Hospital, German Hospital, Volunteer Hospital, the Nursery and Child's Polyclinic and the Lying-In Hospital. These deficits are due largely to war conditions, the increased cost of living cutting down sums usually contributed to hospitals, and there has been a material increase in the number of patients the various hospitals have had to care for. The deficit is estimated at $1,000,000.

Red Cross Xmas Sale for Tubercular Soldiers.—Virginia has planned to use some of the proceeds from the Red Cross Seal Sale for establishing a War Tuberculosis Campaign Fund for the maintenance of rejected men, tubercular soldiers and their families.

High Cost of Liquor Empties Hospitals.—The City Hospital of St. Louis is said to have been without a patient in the alcoholic ward, and during a period over forty-eight hours no patient was sent in for treatment. The daily average number of patients during the last year was about fifteen, with a high record of 45. This shortage of patients is attributed to the high cost of liquor.

Southern Medical Association Meeting.—The annual convention of this association was held in Memphis, November 12-15. Among the principal subjects discussed at the meeting were tuberculosis, the eradication of malaria, the condemnation of patent medical preparations carrying on their labels fradulent or deceptive statements as to curative or remedial properties. In the annual address of the president, Dr. Duncan Eve, an appeal was made to

the young physicians and surgeons of the South to enlist for military service and scored "pitiful pacifists and malicious Teutonic propagandists." Medical and Surgical clinics were held and sectional meetings dealing with public health and medicine.

The officers elected for the ensuing year are: president, Dr. Lewellyn F. Barker, Baltimore; Dr. Wm. H. Deaderick, Hot Springs, first vice-president; Dr. T. C. Halloway, Hazard, Ky., second vice-president; Dr. Seale Harris, Birmingham, Ala., secretary.

Dr. Maud Loeber, of New Orleans, was elected chairman of the membership committee of the women's section of the Southern Medical Association. Asheville was chosen for the 1918 meeting place.

Guide for Formulating A Milk Ordinance.—The United States Department of Agriculture has issued a "Guide for Formulating a Milk Ordinance," which is designed to protect the community against fraud and disease and to insure cleanliness in the production and handling of milk. Health officers and physicians interested in improving milk may obtain it free on application to the department.

Removals.—Dr. J. H. Petty, from Fredericksburg, Texas, to Endee, New Mexico.

Dr. M. L. Flynt, from Mart, Texas, to D'Lo, Miss.

Dr. W. A. Love, from 1211 Maison Blanche Bldg., to 2nd Floor Cusachs Building.

Drs. T. B. Sellers and Roy Harrison, from 4th to 2nd Floor, Cusachs Building.

Dr. E. A. Bertucci, from 1226 to 1115 Maison Blanche Bldg.

Dr. F. A. Lamothe, from 103 Chartres St., to 1226 Maison Blanche Bldg.

Dr. P. A. Moore, from 103 Chartres St., to 802 Audubon Bldg.

Drs. G. King Logan and C. L. Eshleman, from 1232 to 1206 Maison Blanche Bldg.

Dr. Geo. Tusson, from 1031 to 1108 Maison Blanche Bldg.

Dr. E. F. Salerno, from 1121 to 1130 Maison Blanche Bldg.

Drs. E. S. Keitz, J. O. Weilbacher and A. D. Mouledous, from 623 Macheca Bldg. to 1108 Maison Blanche Bldg.

Dr. Gayle Aiken, to suite 411-12 Macheca Bldg.

Dr. V. L. Sandifer, from Pleasant Hill, to Natchitoches, La.

Dr. L. V. J. Lopez, First Lieut., from Fort Riley, Kansas, to Camp Gordon, Atlanta Ga.

Dr. W. M. Johnson from Eye, Ear, Nose and Throat Hospital, to 1121 Maison Blanche Bldg.

THE CLINICAL LABORATORY, from 1206 Maison Blanche Bldg., to 303 Medical Bldg.

PERSONALS.—Among the doctors from New Orleans who attended the meeting of the Southern Medical Association in Memphis were Drs. S. K. Simon, Randolph Lyons, Marcus Feingold, Elizabeth Bass, Allan Eustis, C. C. Bass, W. J. Durel, H. Dupuy, J. T. Crebbin, L. H. Landry, E. S. Hatch, Maud Loeber and Isadore Dyer. Dr. Randolph Lyons was elected Chairman of the Section of Medicine for the 1918 meeting.

Dr. C. Jeff. Miller was called to Washington during the month in the interest of the District Exemption Board, of which he is chairman.

Dr. H. R. Carter, of the U. S. P. H. Service, Ancon, C. Z., was a visitor in New Orleans during the past month.

ORLEANS PARISH MEDICAL SOCIETY NEWS.

AT THE REQUEST of the Orleans Parish Medical Society we publish the following:

War Department, Office of the Surgeon General,
Washington, October 25, 1917.

Dear Doctor:

In a letter of September 21, 1917, the Surgeon General directed your attention to the following:

He is arranging for special treatment for wounded, including special efforts for functional restoration of damaged parts and vocational re-education for those who, from the nature of their illness or injury, are unable to follow their previous occupation.

A number of the Secretaries of County Medical Societies responded to that letter. In order to make our work as comprehensive and as successful as possible, we are anxious to learn every type of occupation which our crippled and diseased handicaps are doing. Won't you assist in this work by having every physician in your county society compile a list of every cripple he knows and the type of work he is doing, and return the same to the undersigned as soon as possible? For your guidance, we are enclosing a questionnaire in the form of a chart which gives you the information we are desirous of obtaining.

Some of the doctors have already returned interesting autobiographies from successful cripples, even sending photographs showing them at almost unbelieveable occupations in spite of their handicaps. Would you ask your members to secure as many of these historics, and when possible photos, and send in at once? These are to be compiled in a booklet and sent to our war cripples in order to cheer them up and show them that there is still a further work to do notwithstanding their handicapped condition.

HARRY E. MOCK,
Lieutenant, M. O. R. C.

PUBLICATIONS RECEIVED

WM. WOOD & COMPANY, New York, 1917.

A Reference Handbook of the Medical Sciences, by Various Writers. First and second edition edited by Albert H. Buck, M. D. Third edition, completely revised and enlarged, edited by Thomas Lathrop Stedman. Complete in eight volumes. Vol. VIII.

Kirk's Handbook of Physiology. Revised and rewritten by Charles Wilson Greene, A. M., Ph. D. North American edition.

J. B. LIPPINCOTT COMPANY, Philadelphia and London, 1917.

International Clinics. Volume III. Twenty-seventh Series, 1917.

White and Martin's Genito-Urinary Surgery and Venereal Diseases. By Edward Martin, A. M., M. D., F. A. C. S., Benjamin A. Thomas A. M., M. D., F. A. C. S., and Stirling W. Moorhead, M. D., F. A. C. S. Tenth edition.

W. B. SAUNDERS COMPANY, Philadelphia and London, 1917.

The Medical Clinics of North America. September, 1917.

C. V. MOSBY COMPANY, St. Louis, 1917.

Diseases of Women, by Harry Sturgeon Crossen, M. D., F. A. C. S.

P. BLAKISTON'S SON & COMPANY, Philadelphia, 1917.

Elements of Field Hygiene and Sanitation, by Joseph H. Ford, B. S., A. M., M. D. Approved for publication by the Surgeon-General U. S. Army.

PAUL B. HOEBER, New York, 1917.

Recollections of a New York Surgeon, by Arpad G. Gerster, M. D.

Radium Therapy in Cancer. At the Memorial Hospital, New York. First Report, 1915-1916. By Henery H. Janeway, M. D., Benjamin S. Barringer, M. D., and Gioacchino Failla, E. E., A. M.

THE MACMILLAN COMPANY, New York, 1917.

The Clinical Pathology of the Blood of Domesticated Animals, by Samuel Howard Burnett, A. B., M. S., D. V. M. Second edition, revised and enlarged.

A Handbook on Antiseptics, by Henry Drysdale Dakin, D. Sc., F. I. C., F. R. S., and Edward Kellogg Dunham, M. D.

MORTUARY REPORT OF NEW ORLEANS.

Computed from the Monthly Report of the Board of Health of the City of New Orleans, for October, 1917.

CAUSE.	*White.*	*Colored.*	*Total.*
Typhoid Fever	3	1	4
Intermittent Fever (Malarial Cachexia)	------	1	1
Smallpox	------	------	------
Measles	------	------	------
Scarlet Fever	------	------	------
Whooping Cough	------	------	------
Diphtheria and Croup	3	------	3
Influenza	2	------	2
Cholera Nostras	------	------	------
Pyemia and Septicemia	------	------	------
Tuberculosis	39	38	77
Cancer	21	4	25
Rheumatism and Gout	1	1	2
Diabetes	10	1	11
Alcoholism	1	1	2
Encephalitis and Meningitis	2	------	2
Locomotor Ataxia	1	------	1
Congestion, Hemorrhage and Softening of Brain	10	14	24
Paralysis	8	1	9
Convulsions of Infancy	------	------	------
Other Diseases of Infancy	9	13	22
Tetanus	------	------	------
Other Nervous Diseases	7	1	8
Heart Diseases	70	39	109
Bronchitis	2	------	2
Pneumonia and Broncho-Pneumonia	14	20	34
Other Respiratory Diseases	1	2	3
Ulcer of Stomach	3	2	5
Other Diseases of the Stomach	1	1	2
Diarrhea, Dysentery and Enteritis	12	8	20
Hernia, Intestinal Obstruction	1	2	3
Cirrhosis of Liver	4	9	13
Other Diseases of the Liver	4	3	7
Simple Peritonitis	------	------	------
Appendicitis	5	1	6
Bright's Disease	36	23	59
Other Genito-Urinary Diseases	13	9	22
Puerperal Diseases	4	2	6
Senile Debility	1	------	1
Suicide	4	------	4
Injuries	19	18	37
All Other Causes	10	11	21
TOTAL	321	226	547

Still-born Children—White, 21; colored, 22; total 43.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per annum for Month—White, 13.96; colored, 26.59; total, 17.36; Non-residents excluded, 15.21.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. 30.07

Mean temperature. . . . . 66.

Total precipitation. . . . . 0.71 inches

Prevailing direction of wind, northeast.